93-834

Supreme Court, U.S.
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Case No.____

IN THE

Supreme Court of the United States

OCTOBER TERM, 1993

SHANDON INC., *et al.*,

Petitioners,

v.

MILES LABORATORIES, INC., *et al.*,

Respondents.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR WRIT OF CERTIORARI

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83 pp

QUESTION PRESENTED FOR REVIEW

To best serve the Constitutional purpose of promoting the progress of Science and the useful Arts, should the reach of the Doctrine of Equivalents be determined only by the *subjective* and increasingly inconsistent application of the function/way/result test, or by an evaluation of the four *objective* factors advanced by this Court in *Graver Tank* as justification for a finding of infringement under the Doctrine?

PARTIES TO THE PROCEEDING

Pursuant to Supreme Court Rules 14.1.(b) and 29.1., the parties to the proceedings in the Court of Appeals for the Federal Circuit were the Petitioners, Shandon Inc. and Shandon Southern Products Limited and the Respondents, Miles Laboratories, Inc. and Triangle Biomedical Equipment, Inc.

The parent companies of the Petitioners are set forth below:

For Shandon Inc.

Parent:-Life Sciences International Inc. which is wholly owned by Life Sciences International PLC

All subsidiaries are wholly owned.

For Shandon Southern Products Limited (now by change of name, Life Sciences International (Europe) Ltd.)

Parent:-Life Sciences International PLC

All subsidiaries are wholly owned.

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PETITION FOR WRIT OF CERTIORARI

Petitioners, Shandon Inc. and Shandon Southern Products Limited, respectfully pray that a writ of certiorari issue to review the judgment and opinion of the United States Court of Appeals for the Federal Circuit entered in its Case Nos. 92-1358, -1387 on June 14, 1993.

OPINIONS BELOW

The opinion of the Court of Appeals for the Federal Circuit is reported at ____ F.2d ____, 27 USPQ2d (BNA) 1123 (Fed. Cir. 1993) and is reprinted in the Appendix[1] beginning at page A-1.

[1] References to the Appendix in this booklet are "A" followed by the page number; thusly "A-1". References to the Joint Appendix filed in the Federal Circuit are "JA" followed by the page number.

A Petition for Rehearing was denied on September 1, 1993; a Suggestion for Rehearing *in Banc* was also denied September 1, 1993; the order denying the Combined Petition for Rehearing and the Suggestion for Rehearing *in Banc* is set forth in the Appendix at pages A-53, 54.

The Opinion, Memorandum Opinion and Orders of the District Court entered March 11, 1992, April 14, 1992 and May 8, 1992, respectively, are set forth in the Appendix beginning at page A-16.

STATEMENT OF GROUNDS FOR JURISDICTION

The judgment of the Court of Appeals for the Federal Circuit was entered on June 14, 1993, and issued as a mandate on July 6, 1993. A petition for rehearing and a suggestion for rehearing *in banc* were denied on September 1, 1993. This Court has jurisdiction under 28 U.S.C. § 1254(1) (1993).

CONSTITUTIONAL PROVISION AND STATUTE INVOLVED

Constitution of the United States, Article I, Section 8, Clause 8:

> The Congress shall have Power . . . to promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;. . . .

Title 35, United States Code, § 271(a):

271. INFRINGEMENT OF PATENT.

> (a) Except as otherwise provided in this title, whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent.

STATEMENT OF THE CASE

Background

This petition arises out of an action by Respondents Miles Laboratories, Inc. ("Miles") and its licensor against Petitioners Shandon Inc. ("Shandon") and its U.K. parent, Shandon Southern Products Limited ("Shandon Southern") alleging that Shandon's sales of tissue processors manufactured by Shandon Southern infringe two patents[2] exclusively licensed by Miles. Tissue processors automatically process tissue using a very old, well-understood procedure that involves the sequential treatment of tissue specimens with a series of chemical solutions (sometimes called "reagents")[3] to prepare the specimens for viewing under a light microscope to detect, for example, cancer cells.

Early tissue processing equipment typically consisted of a rotary carousel of open-topped solution containers into which the tissue specimens were sequentially dunked. This arrangement allowed noxious fumes from the volatile reagents to pervade the laboratory. Later devices, including those involved here, employ a central processing basin which holds the specimens while the liquid reagents are moved, one-by-one, from storage bottles into the basin (or chamber) and back.

The '460 method patent, which was held invalid for obviousness under 35 U.S.C. § 103, claims a particular method for moving the liquid reagents solutions within a tissue processor. The '073 patent, the subject of this petition, claims a tissue

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[2] U.S. Patent No. 4,001,460 ("the '460 patent") claims a process and U.S. Patent No. Re. 29,073 ("the '073 patent") claims an apparatus. The specification and drawings are identical, the '460 patent being a division of the original of the '073 patent. *See* JA-842 through JA-864. Copies of the patents are lodged with the Clerk of the Supreme Court.

[3] Exemplary of reagents used in tissue processing are the volatile substances formalin, xylene and various alcohols.

processing apparatus in which the unpatentable method may be practiced. The Federal Circuit reversed the district court's judgment that the claims of the '073 patent are literally infringed and affirmed the district court's judgment that the claims of the '073 patent are not invalid and are infringed under the doctrine of equivalents.

The Accused Device

In response to a complaint in 1980 received from the Canadian Health Authority demanding that something be done to prevent the amount of xylene fumes in the laboratory from reaching adverse levels, Shandon Southern, in the person of its senior design engineer, John Gordon, began the design of a new tissue processor.[4] Mr. Gordon knew of the two commercially available tissue processors, one made by Miles called the "VIP" which purported to use the method of the '460 patent, and another made by Fisher Scientific. It was known in the industry that both machines emitted large quantities of fumes.

Mr. Gordon's efforts produced an automated tissue processor called the "Hypercenter", for which Shandon Southern was awarded a patent.[5] The accused Hypercenter employs Mr. Gordon's eventual solution to the problem of noxious fume emission; namely, abandon the conventional (Miles and Fisher) technique of trying to filter the air emitted by the tissue processor and adopt a "closed loop" system in which all liquids and gases are held captive within the system so that no fumes of any kind are discharged to atmosphere during normal operation.

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[4] Shandon Southern had been a longtime supplier of tissue processing equipment.

[5] U.S. Patent No. 4,604,964 (JA-1472-82). During the prosecution of the application leading to the Gordon patent, the U.S. Patent and Trademark Office considered U.S. Patent No. 3,892,197, the original of the '073 reissue patent in suit, and presumably found Mr. Gordon's invention to be patentable over the teachings of that patent.

A further dramatic improvement in the Hypercenter was its modular design. As shown in the Shandon brochure [A-56, 57], the Hypercenter consists of three separate cabinets: a command module which houses the controls for operating the Hypercenter, a reaction module which contains the processing chamber and the paraffin baths, and a fireproof storage module which houses the volatile reagent storage bottles. Mr. Gordon deliberately chose the modular design in order to isolate the flammable reagents used in tissue processing from any source of ignition, notably the electrical components. In the Hypercenter, the back and forth movement of volatile liquids from the storage module to the reaction module is accomplished by pneumatic (air) pressure exerted by a pump located in the control module and transmitted through air lines to the other two modules. Mr. Gordon thus sacrificed the lower cost and operating convenience associated with housing all components of the Hypercenter within a single cabinet in favor of a more expensive and complex, but safer design.

The '073 Patent

The '073 patent (and its companion, the '460 patent) discloses the tissue processor that was built for the inventors, Thomas D. Kinney and John E. P. Pickett, in the early 1970's. As is evident from FIG. 1 of the '073 patent [A-55], all of the components of the Kinney/Pickett tissue processor are contained in a single cabinet. Indeed, the '073 patent speaks of "the many advantages of unifying all the necessary processing and control apparatus in a common table top mounted cabinet"[6]

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[6] The specification states that the controls could be mounted in a separate cabinet and the claims state that the controls are mounted proximate the cabinet. The clear preference, however, is for unification. More importantly, every other element recited in the claims, including other electrical components and the reagent solution containers, are specifically required to be positioned *in* the same cabinet. In contrast, the Hypercenter's design separates all electrical components from the vicinity of the volatile reagents.

[JA-850, '073 patent at Col. 10, lines 36-38] and describes the apparatus as being "unified in a table mounted cabinet." [JA-846, Col. 2, lines 22-23]. The specification provides further that "[t]he mounting of the air pump 61 and its associated piping and valves in the cabinet provide a unitary and self-contained processing apparatus with obvious advantages." [JA-850, Col. 10, lines 27-30]. Ironically, the first prototype tissue processor made for Kinney and Pickett was destroyed by fire.

The Federal Circuit Decision

The Federal Circuit determined that "the district court clearly erred in finding that the HYPERCENTERs (consisting of three cabinets) literally infringed the single cabinet limitation of the '073 patent." A-9. The Federal Circuit observed that "[t]he district court properly construed the term 'cabinet' to mean a *single*[7] enclosure for the various parts of the apparatus. The claims, specification, and drawings disclose a single cabinet enclosing the tissue processing apparatus." A-8.

However, the Federal Circuit affirmed the district court's holding with regard to infringement of the asserted claims of the '073 patent under the doctrine of equivalents. Shandon had argued that the district court did not determine that the accused Hypercenter achieves substantially the same result as the '073 patent and that the stated purpose of the single cabinet in the '073 patent is to unify the various components, whereas the three modules of the Hypercenter intentionally disperse the components. The Federal Circuit acknowledged the three prong function, way and result test of *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950), and said that the doctrine's goal is to prevent "the pirating of the patentee's invention... when liability is nevertheless warranted." A-9. The Federal Circuit, however, seized upon language in the district court's opinion that emphasized the *process* aspects of the

[7] Emphasis ours throughout unless otherwise noted.

apparatus disclosed in the '073 patent.[8] Building upon that language, the Federal Circuit concluded:

> Regardless of separation into modules, Shandon's system is still a "completely automatic system for allowing light microscopy tissue to be processed under a completely automatic sequence in an entirely closed system and without requiring substantial movement of the specimens." (citations omitted) Thus, the HYPERCENTERs achieved substantially the same result as the '073 patent.
>
> To allow Shandon to escape infringement simply because it used separate cabinets, as opposed to a single cabinet, is the exact type of injustice the doctrine of equivalents prevents. A-10, 11.

The Federal Circuit thus determined that, notwithstanding the unpatentability of the process for automatically processing tissue defined in the claims of the '460 method patent (i.e., the "same result" the Federal Circuit talked about above) and the lack of literal infringement of the '073 patent, the Hypercenter, a novel device in its own right, is within the reach of the doctrine of equivalents.

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[8] The Federal Circuit's quotation of the district court reads:

> The '073 patent discloses an apparatus for fixing and processing the tissue specimens. It is an improvement over the prior art because it represents the first completely automatic system for allowing light microscopy tissue to be processed under a completely automatic sequence in an entirely closed system and without requiring substantial movement of the specimens. (emphasis in original) A-10, A-19.

REASONS FOR GRANTING THE WRIT

I. The Federal Circuit, Whose Charter Was To Unify Decisional Patent Law, Has Lost Touch With The Objective Factors That Bottomed This Court's Decision In *Graver Tank* And Now Subjectively Applies The Doctrine Of Equivalents; As A Result, Uncertainty Abounds.

The last time this Court addressed the doctrine of equivalents was in its 1950 decision, *Graver Tank*, 339 U.S. 605 (1950). In that case, the Court upheld a district court determination that the use of manganese in substitution for magnesium in a claim to a composition for a welding flux constituted infringement of the claim under the doctrine of equivalents. Mr. Justice Jackson, on behalf of the majority, recounted the basis for the doctrine of equivalents:

> But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for - indeed encourage - the unscrupulous copyist to make *unimportant* and *insubstantial* changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to *pirate* an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy.

Justice Jackson then quoted earlier Supreme Court decisions in which it had been said that infringement may be found under the doctrine of equivalents if the device of another "'performs substantially the same function in substantially the same way to obtain the same result.'" *Graver Tank*, 339 U.S. at 608, *quoting Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929).

In the last forty-three years, the "function, way and result" test has become the starting and stopping point in every doctrine of equivalents analysis, but its application by the Federal Circuit falls short of the peace of mind and guidance a real framework for analysis should provide. The just goal of the doctrine, to prevent piracy by the introduction of insubstantial changes without loss of the constitutional goal of promoting the useful arts[9], has been lost. The function, way and result test can be used to support any outcome desired, depending on how broadly or narrowly the function or the result is defined. Whether to define it broadly, by applying it to the "invention as a whole"[10], or narrowly, by applying it on an "element-by-element"[11] basis, or whether to entertain the issue at all,[12] has been the subject of considerable controversy in the Federal Circuit and the lower courts.

Petitioners respectfully call on this Court to provide the framework and guidance lacking in this area of the law for so long. The success of the Federal Circuit in bringing conformity to other issues of patent law has not been duplicated in regard to the doctrine of equivalents. In a startling comment on this failure, Chief Judge Nies of the Federal Circuit observed, "the interpretation of the doctrine of equivalents, will continue to

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9 U.S. Const. art. I, § 8, cl. 8, *supra* p.2.

10 *Hughes Aircraft Co. v. U.S.*, 717 F.2d 1351 (Fed. Cir. 1983).

11 *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931 (Fed. Cir. 1987); *Spectra Corp. v. Lutz*, 839 F.2d 1579 (Fed. Cir. 1988); *but see, Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251 (Fed. Cir. 1989) and *Malta v. Schulmerich Carillons Inc.*, 952 F.2d 1320 (Fed. Cir. 1991).

12 *Schneider (USA), Inc. v. Cordis Corporation*, DC Minn, No. 4-92-1143, slip op. (Sept. 9, 1993) (where the court granted a motion for summary judgment, declining to permit the question of infringement under the doctrine of equivalents to go to the fact finder, and remarked that if the doctrine of equivalents is applied too broadly it "*can eviscerate both the claiming system and the goal of providing notice to the public of the scope of a patent.*")

depend on the selection of the panel." *Malta v. Schulmerich Carillons Inc.*, 959 F.2d 923 (Fed. Cir. 1992) *den'g reh. of* 952 F.2d 1320 (Fed. Cir. 1991).

Consistency in the application of the doctrine of equivalents and conformity in the reach of the patent monopoly is critical to progress in this country. Business people, particularly in today's economic climate, are wont to spend precious resources designing improvements, solving problems in existing technology and developing new products if the fruits of their labor and the benefits of their advances can be stripped from them, without notice, by the sometimes broad and always unpredictable reach of the doctrine of equivalents in patent infringement actions. This is particularly painful where, as in the instant case, improvers have been able to avoid the literal scope of another's patent; where, as in the instant case, the changes and improvements made were not unimportant and insubstantial; where, as in the instant case, there has been no piracy, but rather a good faith effort to correct serious problems in the conventional technology.

Mr. Justice Black, in a dissenting opinion in *Graver Tank*, 339 U.S. at 617, foreshadowed the events of today:

> Hereafter a manufacturer cannot rely on what the language of a patent claims. He must be able, at the peril of heavy infringement damages, to forecast how far a court relatively unversed in a particular technological field will expand the claim's language after considering the testimony of technical experts in that field. To burden business enterprises on the assumption that men possess such a prescience bodes ill for the kind of competitive economy that is our professional goal.

Mr. Justice Black's concern for business was not unwarranted. The application of the doctrine of equivalents by the courts has been inconsistent and haphazard; and there are no

signs that the Federal Circuit is headed toward correction of the problem.[13] Commentators and legal scholars have bemoaned the negative impact; one observed:

> The doctrine of equivalents is the primary (although not the exclusive) cause of the current uncertainty surrounding the scope of patent claims. This uncertainty has serious consequences. First, uncertainty about the scope of patent protection hinders . . . business decisions, such as the direction that research and development efforts should take. Second, a primary purpose of the protection of intellectual property is to encourage the production of inventions. . . . *The uncertainty generated by the doctrine of equivalents frustrates and chills the activities of these other inventors, who must be concerned about whether their efforts will be met by an infringement suit based on the amorphous doctrine of equivalents.* . . .[14]

Another observed:

> . . . the courts have intentionally fashioned the doctrine of equivalents into one of the most complex and

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[13] As almost a lone voice, Circuit Judge Lourie said in 1991:

> Application of the doctrine of equivalents is the exception, however, not the rule, for if the public comes to believe (or fear) that the language of patent claims can never be relied on, and that the doctrine of equivalents is simply the second prong of every infringement charge, regularly available to extend protection beyond the scope of the claims, then claims will cease to serve their intended purpose. Competitors will never know whether their actions infringe a granted patent.

London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991). Circuit Judge Rader, who authored the unanimous opinion in this case, was a member of the panel in *London*.

[14] Martin J. Adelman and Gary L. Francione, *The Doctrine Of Equivalents In Patent Law: Questions That Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 682-83 (1989).

unpredictable factors in patent enforcement. The essentially subjective nature of the standard makes it difficult to determine whether a device or composition . . . will be held to be an equivalent until the case is decided on appeal.[15]

II. Despite The Complete Absence Of *Graver Tank's* Objective Factors — Imitation, Insubstantial Changes, Known Interchangeability Between The Accused And Patented Structures — The Federal Circuit Subjectively Applied The Doctrine To Petitioner's Improved Device.

The confusion and subjectivity in applying the doctrine of equivalents need not have happened. *Graver Tank* provides meaningful, objective benchmarks to be considered in the application of the doctrine:

- the presence or absence of unimportant and insubstantial changes and substitutions in the patents [339 U.S. at 608]
- whether persons skilled in the art would have known of the interchangeability of the accused equivalent structure and the patented structure [*Id.* at 609]
- whether the accused equivalent structure was developed as the result of independent research or experiments [*Id.* at 612]
- whether there is equivalence in fact between the patented structure and the accused equivalent structure. [*Id.* at 608]

It is only in the assessment of the last benchmark — equivalence in fact — that the function/way/result test should come into play. The Federal Circuit has used the test, however, in a subjective

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[15] Kenneth J. Burchfiel, *Patent Misuse and Antitrust Reform: "Blessed Be The Tie?"*, 4 HARV. J.L. & TECH. 1, 93-94 (1991); *See also*, Sean T. Moorhead, Note, *The Doctrine of Equivalents: Rarely Actionable Non-Literal Infringement or the Second Prong of Patent Infringement Charges?*, 53 OHIO ST. L.J. 1421, 1428 (1992).

vacuum without regard to the other three objective benchmarks advanced by *Graver Tank* to justify a finding of infringement under the doctrine of equivalents. It is important to keep in mind that the doctrine is applied only after a determination that the accused device does not include every limitation required by the claims and, therefore, does not literally infringe the patent. The doctrine should thus be applied sparingly after consideration of all four of the *Graver Tank* objective benchmarks. The reliance on the function/way/result test to the exclusion of the other benchmarks and the subjective, inconsistent application of the tripartite test has permitted it to evolve into nothing more than a mantra with which to initiate every doctrine of equivalents analysis. The direction the analysis takes thereafter, as discussed above, is unpredictable.

The Federal Circuit in this case had no evidence before it on the first three benchmarks that would favor the application of the doctrine of equivalents. To the contrary, the record showed:

- The Hypercenter's three modules were adopted despite an increased cost of manufacture compared with a single cabinet, but the improvement in safety with regard to fire hazard was worth it.
- The '073 patent contains no suggestion of modularization to effect the complete segregation of electrical components from volatile reagents; to the contrary, the patent specification speaks of the benefits of unifying all components in a single cabinet and the claims require the juxtapositioning of electrical components and solution containers in the same cabinet.
- The Hypercenter was designed with knowledge of the existing single cabinet designs and was deemed by the U.S. Patent and Trademark Office to be a sufficient advance over the patented device to warrant a patent itself.

Against this factual background, the Federal Circuit immediately seized upon the function/way/result test, proclaiming that its application "prevents the pirating of the patentee's invention in the absence of literal infringement *when liability is nevertheless warranted*". [A-9] How, in this case, is liability "nevertheless warranted"? Certainly, the objective factors of *Graver* do not "warrant" liability. The answer, unfortunately, is that liability is warranted by the subjective notions of the court.

So strong were these notions, apparently, that the Federal Circuit, as we shall see, applied the result of the wrong one of the two patents in suit to its analysis of the Hypercenter.

III. In Analyzing The "Result" Branch Of The Function/Way/Result Test, The Federal Circuit Looked To The Result Of The Invalid '460 Method Patent, Not The '073 Apparatus Patent In Issue.

The Federal Circuit has always stated that the scope of equivalence cannot expand the patentee's right to exclude to cover things in the prior art for which patent protection would not have been granted. *Wilson Sporting Goods v. David Geoffrey & Associates*, 904 F.2d 677 (Fed. Cir. 1990). In the instant case, however, the Federal Circuit has opened the door.

The Federal Circuit's opinion attributes to the claimed apparatus a function and result found to be within the skill of the art. The method for automatically processing tissue specimens at a single location, the processing chamber, as defined in the claims of the '460 patent, was determined to have been obvious to those of ordinary skill in the art. Those claims are invalid and do not benefit from the patent monopoly. Thus, anyone should have been able to practice that process, in an apparatus not covered by the '073 patent, without liability for patent infringement. To borrow Justice Douglas' words, we end with a strange anomaly: the monopoly on the process of the '460 patent lives on.[16]

[16] *Graver Tank*, 339 U.S. at 618.

The Federal Circuit's analysis under the doctrine of equivalents did not focus on the result which the specification of the '073 patent attributes to the structural limitations of the claims — unification. Instead, the Federal Circuit focused on the process to be performed by the tissue processing apparatus as a whole. But that process is unpatentable and cannot be allowed to form the basis of a test for equivalence. Decisions to reject claims of a patent application made by the Patent and Trademark Office and decisions to invalidate patent claims made by courts are rendered meaningless if the thing declared to be unpatentable can be used, in the name of the doctrine of equivalents, to extend the patent monopoly of the valid claims of a companion patent.

If the Federal Circuit had focused on the result of the structural elements set forth in the claim, the panel would have considered the patent's stated goal of unification discussed above. When the result is defined as unification, three modules that separate the elements and remove all electrical components from the vicinity of the solution containers for fire protection cannot be construed as being equivalent to a single cabinet that unifies the elements and deliberately positions the electrical elements in the same cabinet as the volatile, flammable reagents.

CONCLUSION

The extension of the patent monopoly under the doctrine of equivalents as applied by the Federal Circuit is inconsistent, unpredictable and often in direct contradiction to the constitutional goals to be served by the patent laws. The outcome is based not on any objective standard, but on judicial fiat.

This Court's decision in *Graver Tank* applied the doctrine of equivalents to prevent a fraud on a patent by the clever pirate who makes insignificant and insubstantial changes to a claimed invention to escape the literal language of the claims. In the years since *Graver Tank* was decided, the subjective and sometimes sweeping application of the function/way/result test has

allowed the doctrine of equivalents to become a great pirate in its own right, stealing, without fair warning, the fruits of those who develop improvements in a field in total disregard to whether the changes are substantial and significant.

We do not propose abandoning the doctrine of equivalents in its entirety. There are still unscrupulous pirates that should be enjoined from stealing another's invention. We do propose that this Court set down clear guidelines which the Federal Circuit can follow to render consistent decisions under the doctrine of equivalents and which the business and scientific communities can follow to make reasonable determinations regarding the future of research and development.

For the reasons expressed herein, Petitioners respectfully request this Court to grant this Petition for Writ of Certiorari to consider the application of the doctrine of equivalents.

Respectfully submitted,

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APPENDIX

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United States Court of Appeals
for the Federal Circuit

MILES LABORATORIES, INC. and
TRIANGLE BIOMEDICAL EQUIPMENT, INC.,
Plaintiffs/Cross-Appellants,

v.

SHANDON INC. and SHANDON SOUTHERN
PRODUCTS LIMITED,
Defendants-Appellants.

92-1358,-1387

Arnold Sprung, Sprung Horn Kramer & Woods, of Tarrytown, New York, argued for plaintiffs/cross-appellants. With him on the brief was *Nathaniel D. Kramer*.

Robert D. Yeager, Kirkpatrick & Lockhart, of Pittsburgh, Pennsylvania, argued for defendants-appellants. With him on the brief were *Christine R. Ethridge* and *Melvin C. Snyder, III*.

Appealed from: U.S. District Court for the
Western District of Pennsylvania

Judge Diamond

United States Court of Appeals
for the Federal Circuit

MILES LABORATORIES, INC. and
TRIANGLE BIOMEDICAL EQUIPMENT, INC.,
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v.

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PRODUCTS LIMITED,
Defendants-Appellants.

92-1358,-1387

DECIDED: June 14, 1993

Before PLAGER, *Circuit Judge*, SMITH, *Senior Circuit Judge*, and RADER, *Circuit Judge*.

RADER, *Circuit Judge*.

Miles Laboratories, Inc. and Triangle Biomedical Equipment, Inc. sued Shandon Inc. and Shandon Southern Products Limited, for infringement of U.S. Patent Reissue No. 29,073, entitled "Light Microscopy Processing Apparatus" ('073),* and U.S. Patent No. 4,001,460, entitled "Light Microscopy Processing Method" ('460). The United States District Court for the Western District of Pennsylvania held claims 1, 2, and 4-7 of the '460 patent invalid for obviousness, sustained the validity of the '073 patent, and found infringement of both patents. *Miles Lab., Inc. v. Shandon, Inc.*, No. 86-2404 (W.D. Pa. Mar. 11, 1992) (*Miles I*); *Miles Lab., Inc. v. Shandon, Inc.*, No. 86-2404 (W.D. Pa. Apr. 14, 1992) (*Miles II*). Because the record adequately supports the district court's decision, this court affirms.

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* U.S. Patent Reissue No. 29,073 issued on December 14, 1976 as a reissue of U.S. Patent No. 3,892,197, which was issued on July 1, 1975.

BACKGROUND

Tissue processing is the treatment of tissue specimens to facilitate viewing them under a microscope. The process exposes the tissue specimens to a series of chemical solutions (reagents) in sequence. The '460 patent claims a method and the '073 patent an apparatus for tissue processing. Except for the claims, the two patents have identical specifications.

Under the method accomplished by the apparatus, a central processing chamber confines the tissue specimens under a sealed cover where they remain fixed during treatment with various fluids and paraffin. Once embedded in paraffin, the specimens can be sliced into very thin sections for microscopic viewing. The treatment takes place when a vacuum draws the fluids and paraffin into the central chamber. After proper exposure, pressure in the central chamber expels the fluids back to their storage containers. Thus, the entire processing occurs without tampering with the tissue specimens.

In 1986, Miles sued Shandon for infringement of both patents. The district court held a bench trial in 1988. The district court determined that the doctrine of laches did not bar this action and that claim 1 of the '460 patent was invalid under 35 U.S.C. § 103. *Miles I*, slip op. at 30. The district court also upheld the validity of the '073 patent and found infringement of both patents. *Id.*

Later, the district court clarified its earlier decision and added the '460 patent's dependent claims 2 and 4-7 to its obviousness ruling. *Miles II*, slip op. at 1. In addition, the district court enjoined Shandon from further infringement of the '073 patent. *Id.* Shandon appeals the validity determination on the '073 patent and the infringement rulings. Miles cross-appeals the invalidity determination on the '460 patent.

DISCUSSION

Standard of Review

This court reviews the district court's fact finding under the "clearly erroneous" standard of Rule 52(a):

> Findings of fact, whether based on oral or documentary evidence, shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses.

Fed. R. Civ. P. 52(a) (1988); *see Heisig v. United States*, 719 F.2d 1153, 1158 (Fed. Cir. 1983). This court accepts the legal conclusions of the district court unless incorrect as a matter of law. *Id.*

This court does not review *de novo* proceedings of the district court. *Medtronic, Inc. v. Daig Corp.*, 789 F.2d 903, 904, 229 USPQ 664, 666 (Fed. Cir.), *cert. denied*, 479 U.S. 931 (1986). To win reversal, a party must show that the district court committed reversible legal error or relied upon factual findings which were clearly erroneous in light of the trial record. *Id.* at 904-05. In addition, the "clearly erroneous" standard does not entitle this court to reverse the district court's finding simply because it would have decided the case differently. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1375, 231 USPQ 81, 87 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987). Where the fact-finder's account of the evidence is plausible in light of the entire record or where it chooses one of two permissible views of the evidence, it has committed no clear error. *Id.*

The '073 Patent

On the last day of trial, Shandon moved to introduce an infringement defense that the '073 patent was invalid for indefiniteness under 35 U.S.C. § 112, ¶ 2 (1988). The district court, however, upheld the validity of the '073 patent. On appeal,

Shandon alleges the claims of the '073 patent omit the requirement for "vented" solution containers and therefore do not distinctly claim the disclosed invention.

Validity

Shandon challenged the claims of the '073 patent as indefinite under § 112, ¶ 2. Compliance with § 112, ¶ 2 is a question of law. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986). Section 112, paragraph 2, states:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. § 112, ¶ 2. The "distinctly claiming" requirement means that the claims must have a clear and definite meaning when construed in the light of the complete patent document. *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 452, 227 USPQ 293, 296 (Fed. Cir. 1985). Section 112 thus ensures definiteness of claim language. *See In re Zletz*, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. *Orthokinetics*, 806 F.2d at 1576. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more. *Hybritech*, 802 F.2d at 1385. The degree of precision necessary for adequate claims is a function of the nature of the subject matter. *Id.*

At trial, a Miles expert, Mr. Kocsis, stated:

> Q Now, reading these claims [of the '073 patent], which we have just discussed, did you see any

mention in any of these claims of vented containers or reagent bottles, or anything like that?

A No, I did not.

. . . .

Q Now, that single machine, as described in the '460 and '073 patents, requires that a vent to atmosphere be present in each solution container in order for the machine to transfer solutions from a solution container to a processing chamber and back, is that correct?

A That's correct.

Relying on these isolated statements, Shandon contends that the claims do not specify vented solution containers. Without vented containers, Shandon contends, the claims do not describe a workable invention. Without vents, Shandon asserts, the invention cannot change pressure to draw fluids into and out of the central treatment chamber.

Shandon's argument is irrelevant to definiteness under § 112, ¶ 2. The invention's operability may say nothing about a skilled artisan's understanding of the bounds of the claim. Shandon's argument is possibly relevant, however, to the enablement requirement of § 112, ¶ 1, or to utility under § 101.

Construed as a challenge to utility or enablement, Shandon's argument nevertheless fails. Mr. Kocsis testified that the claimed tissue processors would operate with or without vents in the solution containers. Without vents, collapsible solution containers could permit the transfer of fluids by pressure changes. The district court correctly concluded that "the record shows that even unvented containers would be operative." *Miles II*, slip op. at 4. Thus Shandon did not show a lack of utility, even if the claims cover only unvented containers.

The trial court also determined that the claims, read in light of the specification, covered both unvented containers and vented containers. In fact, the preferred embodiment described in the specification discloses "vented" solution containers:

> Referring again to FIG 3, the previously referred to solution containers 15 (with operating numbers 1 through 10) have respective caps 55 for refilling the containers. Suitable air vents 56, indicated by dashed lines, are provided in each cap 55, but are preferably kept extremely small so as to limit any admission of moisture.

Col. 6, lines 3-9. Therefore, the claims read in light of the specification reasonably apprise those skilled in the art of the claimed invention. Moreover, the record shows that the patent disclosed adequate information to enable a skilled artisan to make and use the claimed invention. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 941, 15 USPQ2d 1321, 1329 (Fed. Cir.), *cert. denied*, 498 U.S. 920 (1990).

Appellant incorrectly characterized its validity challenge as a claim definiteness issue — a characterization which the district court followed, at least in name. Nonetheless, the district court made proper findings and correctly concluded that appellant did not rebut the presumed validity of the claims.

Infringement

The district court determined that the accused devices, known as the HYPERCENTER and the HYPERCENTER 2, infringed the '073 patent literally, or in the alternative, under the doctrine of equivalents. *Miles I*, slip op. at 28-30. On appeal, Shandon argues that the district court misconstrued the "cabinet" limitation of the claims.

This court reviews a trial court's infringement findings under the "clearly erroneous" standard. *Charles Greiner & Co. v. Mari-Med Mfg., Inc.*, 962 F.2d 1031, 1034, 22 USPQ2d 1526,

1528 (Fed. Cir. 1992); *Insta-Foam Prods., Inc. v. Universal Foam Sys., Inc.*, 906 F.2d 698, 702, 15 USPQ2d 1295, 1297 (Fed. Cir. 1990). Claim interpretation is the first step in the two-part infringement determination. *Greiner*, 962 F.2d at 1034. Claim interpretation proceeds as a question of law. *Id.* When a trial court, however, resolves factual disputes underlying the meaning of claim terms, this court reviews these findings under the clearly erroneous standard. *Id.* In interpreting disputed-claim terms, the trial court considers the specification and the prosecution history. *Id.* After interpreting the claim, the final step of the infringement analysis determines whether the accused device is within the scope of the claim. *Id.* To infringe, an accused device must embody exactly each claim limitation or its equivalent. *Id.*

The district court determined that the HYPERCENTERs contained every limitation set forth in claim 1 of the '073 patent. *Miles I*, slip op. at 28. In reaching this conclusion, the district court construed the cabinet limitation of claim 1 to define an enclosure for the various elements of the processing apparatus. *Id.* The court also determined that the HYPERCENTERs consisted of three modules: a module which housed the operating controls, a module which housed the reagent storage bottles, and a module which contained the central processing chamber and the paraffin baths. The district court concluded that the separate modules of the HYPERCENTER collectively formed a cabinet. *Id.*

The district court properly construed the term "cabinet" to mean a single enclosure for the various parts of the apparatus. The claims, specification, and drawings disclose a single cabinet enclosing the tissue processing apparatus. The embodiment illustrated in the patent specification disclosed a single cabinet comprised of a number of sections, including numerous reagent bottles, a processing chamber, paraffin containers, and a control module. Moreover, Webster's defines "cabinet" as "1 a case or"

cupboard with drawers or shelves for holding or storing things . . . **2** a boxlike enclosure." *Webster's New World Dictionary*, 193 (3d col. ed. 1988).

The HYPERCENTERs, however, consist of three modules as opposed to one. "Module" is defined as "any of a set of units, as cabinets, designed to be arranged or joined in a variety of ways." *Webster's* at 872. Because three does not equal one, the district court clearly erred in finding that the HYPERCENTERs (consisting of three cabinets) literally infringed the single cabinet limitation of the '073 patent.

This court, however, concludes that the district court did not err in determining that the HYPERCENTERs infringed the '073 patent under the doctrine of equivalents. Infringement under the doctrine of equivalents requires a showing that the accused device performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed device. *Malta v. Schulmerich Carillons, Inc.*, 952 F.2d 1320, 1325, 21 USPQ2d 1161, 1165 (Fed. Cir. 1991), *cert. denied*, 112 S. Ct. 2942 (1992) (citing *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950)).

The doctrine of equivalents prevents the pirating of the patentee's invention in the absence of literal infringement when liability is nevertheless warranted. *Hormone Research Found, Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1564, 15 USPQ2d 1039, 1044 (Fed. Cir. 1990). The doctrine of equivalents thus prevents the risk of injustice that may result from a limited focus on words alone. *Laitram Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 856-57, 9 USPQ2d 1289, 1291 (Fed. Cir. 1988), *cert. denied*, 490 U.S. 1068 (1989).

Shandon argues that the district court did not determine that the HYPERCENTERs achieved "substantially the same result" as the '073 patent. Shandon contends that the intended result of the '073 patent is unification of the various components.

Shandon alleges that HYPERCENTERs achieve safety and operational advantages by separating the components.

The '073 patent achieves an enclosed tissue processing system. The district court stated:

> The '073 patent discloses an apparatus for fixing and processing the tissue specimens. It is an improvement over the prior art because it represents the first completely automatic system for allowing light microscopy tissue to be processed under a completely automatic sequence in an entirely closed system and without requiring substantial movement of the specimens.

Miles I, slip op. at 3-4 (citation omitted). This result does not change merely because Shandon separated certain components of the system into discrete modules.

In addition, the '073 patent does not specify that the cabinet contains all components of the invention. Rather, claim 1 specifies an "air pump means . . . mounted proximate said cabinet." The '073 patent, col. 11, lines 17-19. Claim 1 also claims "electrical control means . . . mounted proximate said chamber." *Id.* col. 12, lines 1-3. Therefore, although claim 1 may have a cabinet limitation, not all components of the tissue processor must be within the cabinet. Indeed, the specification states that "the controls could be mounted in a separate cabinet." *Id.* col. 10, lines 34-35.

The limitations and functions of the invention in the claims, not the elements or functions of the accused device, establish the reference point for the doctrine of equivalents. *Insta-Foam*, 906 F.2d at 702. Infringement under the doctrine does not vanish merely because the accused device performs functions in addition to those performed by the claimed device. *Id.* Regardless of separation into modules, Shandon's system is still a "completely automatic system for allowing light microscopy

tissue to be processed under a completely automatic sequence in an entirely closed system and without requiring substantial movement of the specimens." See *Miles I*, slip op. at 3-4. Thus, the HYPERCENTERs achieved substantially the same result as the '073 patent.

To allow Shandon to escape infringement simply because it used separate cabinets, as opposed to a single cabinet, is the exact type of injustice the doctrine of equivalents prevents. *See Laitram Corp.*, 863 F.2d at 856-57. This court discerns no clear error in the district court's finding of infringement under the doctrine of equivalents.

The '460 Patent

The district court held claim 1 of the '460 patent invalid for obviousness under 35 U.S.C. § 103 (1988). *Miles I*, slip op. at 16-17. The district court later held the dependent claims of the '460 patent (claims 2, 4-7) invalid by virtue of claim 1's invalidity. *Miles II*, slip op. at 2.

35 U.S.C. § 103 - Obviousness

The ultimate legal conclusion of obviousness is a question of law. *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 989, 6 USPQ2d 1601, 1606 (Fed. Cir. 1988). The analysis of obviousness, however, rests on several factual inquiries: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the art at the time of invention; and (4) objective evidence of nonobviousness. *Id.* (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1960)). This court reviews these factual underpinnings for the legal conclusion of obviousness under the "clearly erroneous" standard. *Specialty Composites*, 845 F.2d at 989. The facts stated herein are based on district court findings not found to be clearly erroneous or otherwise not in dispute.

The prior art in this instance included U.S. Patent No. 3,526,203 (the '203 patent), U.S. Patent No. 3,227,130 (the Weiskopf patent), and the Lipshaw Manufacturing Corporation's "Fluid X Changer." The '203 patent covers an electron microscopy tissue processor. Electron microscopy differs from light microscopy in that the former requires only very small tissue specimens. With small tissue specimens, electron microscopy does not need to reuse processing reagents. Nonetheless, the specification of the '203 patent provides: "it will be apparent that the processor of the invention may be used for processing the larger sized tissue particles which are intended for light microscopy examination." *Miles I*, slip op. at 10 (quoting U.S. Patent No. 3,526,203, col. 8, lines 5-8). The claims of the '203 patent disclose the vacuum component of the '460 patent. Furthermore, the '203 patent suggests a solution to the problem resolved by claim 1 of the '460 patent, namely, a means of reusing a solution by returning unused quantities to the storage container with pressure.

The specification of the '203 patent provides:

> In this regard it should be noted that the practice in electron microscopy work is not to reuse the solutions and in the system of the invention only fresh solution is transferred through the lines and valves connecting the containers with the processing chamber. If the particular solutions are required to be pumped back to the containers after use appropriate pumping and switching controls would have to be provided.

U.S. Patent No. 3,526,203, col. 8, lines 12-19. Although electron microscopy does not reuse solutions, the '203 patent suggests to a skilled artisan the reuse of solutions by pumping them back to their storage containers.

The "Fluid X Changer" (a device used for staining slides bearing tissue specimens) also suggests transfer of solutions by pressure. Moreover, the Weiskopf patent discloses a tissue

processor which transfers solutions by pressure controls. Thus, the prior art of histological equipment taught the flow of liquids in tissue processing apparatuses from one location to another with vacuum-pressure.

The differences between the prior art and claim 1 of the '406 patent were minor and achievable by simple modification. Moreover, the prior art references collectively suggest the engineering necessary to achieve these modifications. Simply put, the '203 patent discloses a tissue processor which does not reuse fluids but instead discharges them into a waste tank after processing. By running a line from the processing chamber back to the fluid storage containers (rather than to the waste tank), the '203 patent would anticipate the '460 patent.

The level of ordinary skill in the art suggests as well a thorough knowledge of the principles of fluid transfer using pressure-vacuum pumps, valves, and conduits at the time of the '460 patent's development. Finally, Miles did not show objective indicia of non-obviousness. Such evidence, if present, would weigh in favor of non-obviousness, although the lack of such evidence does not weigh in favor of obviousness. *See, e.g.*, *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 1 USPQ2d 1196, 1199 (Fed. Cir. 1986). Miles presented no evidence, for instance, that its device represented a substantial share of any definable market. Miles also did not offer evidence on factors such as long-felt need or teaching away in the prior art.

In sum, the district court concluded:

> On the basis of the *Graham* test, therefore, we conclude that claim 1 of the '460 patent is invalid under 35 U.S.C. § 103 because the subject matter of claim 1 as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

Miles I, slip op. at 16-17. This court finds no error (and certainly no clear error) with the district court's obviousness findings and conclusion. Therefore, this court affirms the district court's determination of invalidity of claim 1 of the '460 patent.

In its later opinion, the district court clarified its earlier decision and also held dependent claims (2 and 4-7) of the '460 patent invalid. *Miles II*, slip op. at 1-2. Section 282 requires an independent analysis of the validity of each claim. 35 U.S.C. § 282 (1988); *Ortho Pharmaceutical Corp. v. Smith*, 959 F.2d 936, 942, 22 USPQ2d 1119, 1124 (Fed. Cir. 1992). A party challenging the validity of a claim, absent a pretrial agreement or stipulation, must submit evidence supporting a conclusion of invalidity for each contested claim. *Id.* Where the parties stipulate to "representative" claims, however, a validity resolution for the representative claims applies to the other claims as well. *See Panduit Corp. v. Dennison Mfg. Co.*, 836 F.2d 1329, 1330-31, 5 USPQ2d 1266, 1267-68 (Fed. Cir. 1987).

In an April 1988 pretrial "Stipulation of Agreed Fact, Law of the Case and Questions of Law," the parties agreed:

> The '460 patent contains seven claims. Claim 1 is the only independent claim. Claims 2 through 7 depend directly or indirectly from claim 1. Consequently, claim 1 is the broadest claim and can be considered to be representative of the claims in this patent.

Miles II, slip op. at 2 n.1. This stipulation of the parties made claim 1 a representative for the other claims in the patent. Thus, the parties, their counsel, and the trial court understood that the result the court reached for claim 1 would bind all other claims. Therefore, this court affirms the district court's invalidation of the dependent claims of the '460 patent.

The district court also determined that the accused device infringed the '460 patent. Because it affirms the district court's invalidity findings, this court need not reach the district court's

infringement determination. *See Dana Corp. v. IPC Ltd. Partnership*, 860 F.2d 415, 417, 8 USPQ2d 1692, 1694 (Fed. Cir. 1988), *cert. denied*, 490 U.S. 1067 (1989).

CONCLUSION

For the above stated reasons, this court affirms the district court's finding of infringement of the '073 patent and the upholding of its validity. This court also affirms the district court's holding that claims 1, 2, and 4-7 of the '460 patent are invalid due to obviousness.

COSTS

Each party shall bear its own costs for this appeal.

AFFIRMED

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

MILES LABORATORIES, INC.,
and TRIANGLE BIOMEDICAL
EQUIPMENT, INC.,

Plaintiffs,

v.

SHANDON, INC., and SHANDON
SOUTHERN PRODUCTS LIMITED,

Defendants.

Civil Action No. 86-2404

ORDER OF COURT

AND NOW, this 11th day of March, 1992, for the reasons set forth in the opinion filed this day, IT IS ORDERED that pursuant to 35 U.S.C. §103 (1984), claim 1 of United States Letters Patent No. 4,001,460 ('460 patent) be, and the same hereby is, declared invalid; and,

IT IS FURTHER ORDERED that claim 1 of United States Letters Patent No. Re. 29,073 ('073 patent) be, and the same hereby is, declared valid, and found not to be lacking the specification particularity required by the second paragraph of 35 U.S.C. §112 (1984); and,

IT IS FURTHER ORDERED that pursuant to 35 U.S.C. §271 (1991 Supp.), defendants be, and they hereby are, found to be infringing claims 1, 2, and 4-7 of the '460 patent and claims 1, 4-6, 9, 11, and 13 of the '073 patent.

/s/Gustave Diamond
United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

MILES LABORATORIES, INC.,
and TRIANGLE BIOMEDICAL
EQUIPMENT, INC.,

Plaintiffs,

v.

SHANDON, INC., and SHANDON
SOUTHERN PRODUCTS LIMITED,

Defendants.

Civil Action No. 86-2404

OPINION

DIAMOND, J.

This is an action for patent infringement under 28 U.S.C. §1338. Plaintiffs, Miles Laboratories and Triangle Biomedical Equipment ("Miles"), seek to enforce two patents relating to a method and an apparatus directed to the art of processing and treating tissue specimens in preparation for examination under a microscope. The patents in suit are United States Letters Patent No. Re. 29,073 ("the '073 patent") (see Appendix A) which discloses and claims a LIGHT MICROSCOPY PROCESSING APPARATUS issued on December 14, 1976, as a reissue of United States Letters Patent No. 3,892,197 issued on July 1, 1975, and United States Letters Patent No. 4,001,460 ("the '460 patent") (see Appendix B) which discloses and claims a LIGHT MICROSCOPY PROCESSING METHOD, issued on January 4, 1977. Plaintiffs contend that defendants have infringed claims 1, 4-6, 9, 11, and 13 of the '073 patent and claims 1, 2, and 4-7 of the '460 patent. The other claims of the patents are not at issue.

Plaintiffs seek injunctive relief to prevent defendants from further infringing the patents at issue and damages for past infringement. *See* 35 U.S.C. §§283, 284 (1984). Defendants Shandon, Inc., et al. ("Shandon") assert a number of defenses: they invoke the doctrine of laches; they deny infringement; they maintain that the '460 patent is invalid and therefore unenforceable because it is obvious in light of the prior art; and they argue that the '073 patent is invalid because it fails to claim distinctly the disclosed invention as required by the second paragraph of 35 U.S.C. §112.

For the reasons which follow, the court concludes that (1) this action is not barred by the doctrine of laches; (2) claim 1 of the '460 patent is invalid; (3) claim 1 of the '073 patent is valid; and (4) both patents have been infringed.

I. Procedural and Factual Background

This action was reassigned to this member of the court subsequent to a bench trial held before the Honorable Louis A. Rosenberg.** The trial was limited to the issue of liability, in accordance with the parties' agreement to bifurcate. Although the reassignment occurred prior to the issuance of any findings of fact or conclusions of law, the parties agreed to have the case decided on the basis of the existing record and any other submissions requested by this court.***

The '073 and '460 patents were issued to Dr. Thomas D. Kinney and Mr. John E. P. Pickett. Both patents were assigned to plaintiff Triangle Biomedical Equipment, Inc. ("Triangle"), which in turn entered into a licensing agreement with Miles on

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** The reassignment followed Judge Rosenberg's retirement from active senior status after serving for twenty-nine years on this court.

*** This opinion shall constitute this court's findings of fact and conclusions of law in accordance with Fed.R.Civ.P. 52(a). The parties have filed post-trial proposed findings of fact and conclusions of law along with memoranda of law.

March 20, 1975, making Miles the exclusive licensee of the '073 and '460 patents. Plaintiff Miles has its principal place of business in Elkhart, Indiana, and plaintiff Triangle is a North Carolina corporation.

The '460 patent discloses a *method* of treating tissue specimens before the specimens are examined by a light microscope. The tissue specimens are confined in a central processing chamber under sealed cover and they remain fixed while they are treated with various fluids and paraffin. The fluids are drawn from their containers into the processing chamber by vacuum and the fluids are expelled from the chamber back to their containers by pressure which is applied to the chamber. *See* Appendix B; Defendants' Ex. 1. The '073 patent discloses an *apparatus* for fixing and processing the tissue specimens. It is an improvement over the prior art because it represents the first completely automatic system for allowing light microscopy tissue to be processed under a completely automatic sequence in an entirely closed system and without requiring substantial movement of the specimens. *See* Appendix A; Defendants' Ex. 2.

Defendant Shandon Southern is a limited liability company with its principal place of business in Runcorn, England, and it manufactures the accused devices known as HYPERCENTER and HYPERCENTER 2. Defendant Shandon is a Pennsylvania corporation, and its principal place of business is Pittsburgh, Pennsylvania. Shandon is responsible for the nationwide distribution of the Hypercenter and Hypercenter 2 (collectively "Hypercenter"). Plaintiffs allege that the manufacture, use and sale of the Hypercenter 2 infringe the '073 and '460 patents.

The parties have stipulated that for the purposes of this litigation, there are no material differences between the Hypercenter and Hypercenter 2. The Hypercenter 2 is operated by the purchasers of that product, and defendants have admitted that should the final judgment conclude that the operation of the

Hypercenter 2 in a normal and tendered manner infringes the '460 patent, the purchasers of the Hypercenter operate it in such a manner as well.

II. The Defense of Laches

Defendants argue that plaintiffs' claim for damages is barred by the doctrine of laches. Although patent infringement actions are not subject to a statute of limitations, the equitable doctrine of laches establishes a rebuttable presumption that a delay in filing suit is prejudicial and unexcusable if the suit is filed more than six years from the time the plaintiff knew or in the exercise of reasonable diligence should have known of the alleged infringement. *See Bott v. Four Star Corp.*, 807 F.2d 1567, 1575 (Fed.Cir. 1986).

In order to evaluate a laches defense, the court must ascertain "the time at which the plaintiff knew or, in the exercise of reasonable diligence, should have known of the defendants' alleged infringing action." *Studiengesellschaft Kohle mbH v. Eastman Kodak Co.*, 616 F.2d 1315, 1326 (5th Cir.), *cert. denied*, 449 U.S. 1014 (1980). If the trier of fact finds that a plaintiff unnecessarily and unexcusably delayed filing its lawsuit, the plaintiff-patentee will be denied damages accrued up to the date of the complaint. *See, e g., Bott v. Four Star Corp.*, 807 F.2d 1567, 1575 (Fed.Cir. 1986); Chisum, *Patents* 19.05[2] at 19-164-165.

A finding of laches is dependent upon the particular facts of each case. As the Federal Circuit has put it, laches "is a question primarily addressed to the discretion of the trial court." *Bott*, 807 F.2d at 1576.

Defendants insist that "Miles slept on its rights and allowed Shandon to (i) continue its promotion of the Hypercenter in virtual side-by-side relationship with Miles VIP and (ii) improve the Hypercenter to yield a new product, the Hypercenter 2." Defendants' Proposed Findings of Fact and Conclusions of Law

at ¶130. Defendants maintain that as early as November, 1981, plaintiffs became aware of the Hypercenter at the annual meeting of the National Society of Histology ("NSH") held in Salt Lake City. (Tr. 321-322). Defendants also point out that in September of 1982, the Hypercenter was displayed by Shandon at the NSH show in Boston where Miles was present as an exhibitor, and that two Miles salesmen visited the Shandon booth. (Tr. 326). Defendants further claim that plaintiffs had ample exposure to the Hypercenter in the fall of 1983 at the NSH show in Anaheim, California. (Tr. 292).

Notwithstanding these and other anecdotal incidents cited by defendant, we find that defendant has failed to establish that plaintiff unreasonably delayed in filing suit. The record reveals that defendants periodically altered their advertising literature and that these alterations created a degree of uncertainty in the mind of plaintiffs as to what elements constituted the Hypercenter. *Compare* Defendants' Ex. 23 and 74. Indeed, the record indicates that it was not until 1986 that Miles learned that Shandon was marketing a unit for processing tissue which operated with a vacuum-pressure cycle. (Tr. 285-286; Defendants' Ex. 74).

Moreover, even if we assume, as defendants' experts opine, that the six-year period was triggered as early as November 1981, when a reasonable person should have known about the operation of the Hypercenter, *Bott*, 807 F.2d at 1575, any delay by plaintiffs in filing suit was not unreasonable in view of the fact that they filed this suit on November 12, 1986, *five* (not six) years later. Therefore, we find that the circumstances of this case do not indicate that there was any unreasonable or unexcusable delay in filing of this suit, nor does the evidence suggest that plaintiffs failed to exercise reasonable diligence in acquiring knowledge of defendants' alleged infringing action.

III. The Validity of the '460 Patent

Each claim in a patent is afforded a presumption of validity pursuant to 35 U.S.C. §282 (1984) and that presumption can only be refuted by clear and convincing evidence.**** *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1567 (Fed.Cir. 1983) (citations omitted).

Defendants maintain that claim 1 of the '460 patent***** is invalid by virtue of the doctrine of obviousness, which requires a court to declare a patent invalid if the court determines that:

> [t]he differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

35 U.S.C. §103 (1984). In the seminal case of *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 694 (1966), the Supreme Court set forth a four-part inquiry which courts are to follow in deciding whether a patent is invalid because its subject matter is obvious in light of the prior art. First, the scope and content of the prior art are to be determined; second, the differences between the prior art and the claims at issue are to be ascertained; third, the level of ordinary skill in the pertinent art is to be assessed; and fourth, additional evidence may be considered such as the commercial success of the allegedly invalid

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**** 35 U.S.C. §282 provides in pertinent part:

> A patent shall be presumed valid. Each claim of a patent (whether in independent or dependent form) shall be presumed valid independently of the validity of other claims; dependent claims shall be presumed valid even though dependent upon a valid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting it.

***** Our analysis of the validity of the '460 patent is limited to claim 1, because that was the only claim contested.

patent's embodiments. *See also Leinoff v. Louis Milona & Sons, Inc.*, 726 F.2d 734, 739 (Fed.Cir. 1984); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1344 (Fed.Cir.), *cert. denied*, 469 U.S. 830 (1984).

In applying the *Graham* test, courts are admonished against succumbing to the temptation of hindsight. Thus, a patent may be invalidated only if the invention would have been obvious to those who knew only about the prior art, and the court must examine the prior art without reading into it the patent's teachings. *See Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140 (Fed. Cir. 1986). In short, the question is whether that which is claimed in the patent would have been obvious to one of ordinary skill attempting to solve the inventor's problem; that is, whether "there is something in the prior art *as a whole to suggest* the desirability and thus the obviousness, of making the combination (set forth in the instant claim)." *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 959 (Fed. Cir. 1986) (citations omitted and emphasis added).

A. The Scope and Content of the Prior Art:

As noted above, the appropriate starting point for consideration of obviousness is the scope and content of the prior art. The prior art in this case incudes that considered by the Patent and Trademark Office in examining the application for the '460 patent. In 1968, the inventors of the '460 patent, Kinney and Pickett, filed a patent application on an electron microscopy tissue processor and the application issued as U.S. Patent No. 3,526,203 ("the '203 patent"), which is stipulated to be prior art against both patents in suit. *See* Stipulation of Agreed Facts.

Defendants maintain that the '203 patent renders obvious the method of treating tissue specimens disclosed by claim 1 of '460 patent, which relies on vacuum-pressure cycles alternately to draw and expel reagent solutions to and from the processing chamber. (Tr. 347-51, 368; Defendant's Ex. 28, 101-104, Defendant's Ex. 90A at 61-62). Claim 4 of the '203 patent

discloses the vacuum component of the '460 patent (*see also Summary of Invention* at ¶2, Defendants' Ex. 13), and it suggests a solution to the problem resolved by claim 1 of the '460 patent: that, in order to *reuse* a solution, pressure would have to be applied to the processing chamber, thereby returning the solution to its container. Defendants therefore contend that claim 1 is obvious, even though electron microscopy differs from light microscopy in that the former requires only very small tissue specimens because of the high magnification achievable with electron microscopy and even though electron microscopy requires small volumes of treating reagents, meaning that the reagents may be discarded after a single use rather than being reused as in light microscopy tissue processing.

The '203 patent provides:

> While the invention is primarily intended to provide a means for processing minute size particles for subsequent electron microscopy examination *it will be apparent that the processor of the invention may be used for processing the larger sized tissue particles which are intended for light microscopy examination.* In either case, the required aqueous and nonaqueous organic vexation, dehydration and cleaning solutions may be installed in the respective solution containers and introduced as required for the particular type of microscopy examination. In this regard, it should be noted that the practice in electron microscopy work is *not* to reuse solutions in the system of the invention. Only fresh solution is transferred through the lines in vials connecting the containers with the processing chamber. *If the particular solutions are required to be pumped back to the containers after use appropriate pumping and switching controls would have to be provided.*

Defendants' Ex. 13, Col. 8, lines 3-19 (emphasis added). Thus, although solutions are not reused for electron microscopy, the '203 patent "*suggest*[s] to one skilled in the art" that the solutions may be reused by pumping them back to their containers from the processing chamber. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). (citations omitted).

The prior art also includes the Lipshaw Manufacturing Company's "Fluid X Changer" and it too suggests that solutions may be transferred by using pressure. This device was used for staining slides bearing tissue specimens in which the treating reagents were brought to a central basin for contact with the specimens and were then returned to their respective storage bottles. *See* Defendants' Ex. 17. This method of moving fluids was an innovation over the previous manual technique of transferring specimens or slides from the various reagent containers. The Lipshaw method for moving the reagents to the central basin and back is described thus:

> *AIR PRESSURE* is the method used to transfer the staining solutions from the storage bottle to the staining basin. Then, at a pre-set time ... the solution is withdrawn from the basin with vacuum, and returned to the storage container.

Defendants' Ex. 17 (emphasis added). In order for a pressure differential to be developed between the bottle and the basin, which is subject to atmospheric pressure, the reagent storage bottles must be completely closed. Defendant's Ex. 17 at F-10. Similarly, in order to return the reagent to the storage bottle, a vacuum pump acting on the interior of the closed bottle evacuates air from the bottle to reduce its pressure below the atmospheric pressure acting on the central basin. *Id.*, Defendants Ex. 19 at F-8. During the trial, plaintiffs conceded that the Lipshaw machine describes the use of a vacuum-pressure cycle for titrating staining solutions. (Tr. 75, 78, 134-35).

Finally, the "Weiskopf Patent" (U.S. Patent No. 3,227,130), which was cited during the prosecution of the '460 patent, discloses a tissue processor and contains the following teachings relative to the use of pressure control as a means of transferring solutions:

> ... [t]he flow of the various liquids to the chamber for treating the tissue is controlled by a programming device so that the liquids are transmitted to the inlet of the chambers seriatim, whereby the tissue is treated separately by each of the liquids. To improve and accelerate the infiltration of the tissue by the various processing liquids, *the pressure in the chamber is reduced to below atmosphere*, the liquids are heated and means are provided for stirring the liquids in relation to tissue specimens. The programming includes means of predetermining the length of periods during which each of the liquids is in the chamber for treating the tissue. The apparatus also includes means of separately collecting the various liquids after the treatment of the tissue therewith, so that the liquids may be used repeated, if so desired.

Thus, we find from the record that in the early 1970s it was known in the art of histological equipment that liquids could be caused to flow in tissue processing apparatus from one location to another within the machine by the application of air pressure alone and by the application of vacuum alone or both applied alternately at a single location in the apparatus.

B. Differences Between the Prior Art and the Claimed Invention.

Defendants maintain, and we agree, that the differences between the '203 patent and claim 1 of the '460 patent are revealed by the simple modifications which may be applied to the '203 patent in order to reach the system of the '460 patent. These modifications were acknowledged by Pickett and were

confirmed at trial by the testimony of defendants' expert, Abe Gordon, and these modifications are suggested by the '203 patent. (Tr. at 344; 353-56; 363-69; 370-71; Defendants' Ex. 90B at 169). *See also In re Mills*, 916 F.2d 680, 682 (Fed.Cir.1990). The modifications to the '203 patent include (i) adding a clamp to the already airtight cover of the central processing chamber, allowing it to be pressurized; (ii) running a drain line to the waste tank back to the liquid storage container and eliminating the waste tank as being unnecessary; (iii) providing controls to switch the existing vacuum line to the central processing chamber to a pressure line for pumping liquid back to the storage container.

Mr. Gordon's testimony (Tr. 353-56) is consistent with the doctrine of obviousness, which depends not only on what the references expressly teach, but also on what they would *collectively suggest* to one of ordinary skill in the art. *See Leinoff*, 726 F.2d at 739. This statement by the Federal Circuit in *Leinoff* is apposite to the instant case as the prior art references collectively suggest the engineering necessary to achieve a reagent transfer system of the sort set forth in claim 1 of the '460 patent. (*See* Tr. at 363-71).

Although plaintiffs do not bear the burden of proof on the issue of invalidity, they counter the foregoing arguments by stating that the prior art evinced a prejudice *against* applying pressure to tissue, as is the case with the '460 patent when pressure is applied to the processing chamber. However, this argument was raised for the first time at trial and there is no reference to it in the '460 patent or in the patent's prosecution history. Moreover, defendants' expert, John Ryan of Yale University, disputed the existence of this alleged prejudice. (Tr. at 613, 626-27).

C. The Level of Ordinary Skill and the Pertinent Art.

In ascertaining the level of ordinary skill in the art of transferring liquids in histology apparatus, we may consider the educational level of the inventor, the problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the educational level of active workers in the field. *See, e.g., Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955 (Fed.Cir. 1986); *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381-82 (Fed.Cir. 1983). Not all factors may be present in every case, one or more of them may predominate, and the education of the actual inventor is not dispositive on the question of ordinary skill. However, the inventor's admissions may be important in this inquiry. *Custom Accessories, Inc., supra.*; *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560 (Fed. Cir.), *cert. denied*, 488 U.S. 892 (1988).

With regard to the educational level of the inventor, Pickett was the supervisor of the histology laboratory at Duke University Hospital, and Kinney, the deceased co-inventor, was an M.D. and specialized in pathology. Pickett acknowledged that he was mainly self-taught and he did not have a college degree. Defendant Ex. 90A at 48. Neither Kinney nor Pickett had engineering expertise, and they relied on outside help in the actual construction of prototypes. (Tr. at 42-43, 77-79, 85-87). With regard to problems encountered in the field and prior art solutions to those problems, the record supports the conclusion that the principles of fluid transfer, such as pressure-vacuum pumps, valves and conduits, were well-known to engineers at the time Kinney and Pickett collaborated in the development of their automated tissue processor. (Tr. at 27, 341-42, 395). Indeed, Pickett admitted that prior to his work on the '460 patent, the concept of moving treating solution from a storage container to a processing vessel and returning the solution to its container

by the alternate application of pressure and vacuum was well-known to the public. Defendant's Ex. 90A at 103-04; 202-03.

D. Additional Factors on the Issue of Obviousness.

The final factor to be considered before reaching a conclusion of obviousness is the commercial success which is attributable to the claimed invention. *Demaco Corp. v. F. Von Langsdorff Lic., Ltd.*, 851 F.2d 1387 (Fed.Cir.), *cert. denied*, 488 U.S. 956 (1988). As a general matter, evidence of commercial success in terms of sales volume is less probative where there is no showing that the sales represent a substantial share of any definable market or that the profitability attributable to the patent exceeds the industry standard. *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015 (Fed.Cir. 1985). With the preceding caveat in mind, we conclude that plaintiffs' evidence on the commercial success of their invention is inconclusive because there has been no showing that the sales represented a substantial share of any definable market. *See* Plaintiffs' Ex. W; Tr. at 725-37. Rather, plaintiffs have simply documented the total United States and foreign sales by units, without indicating the market share they represent.

On the basis of the *Graham* test, therefore, we conclude that claim 1 of the '460 patent is invalid under 35 U.S.C. §103 because the subject matter of claim 1 as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Moreover, plaintiffs have not rebutted defendants' prima facie case of obviousness by offering evidence on such factors as long-felt need or teaching away in the prior art. *Orthopedic Equipment Co.*, 702 F.2d at 1013. In accordance with 35 U.S.C. §282, however, our conclusion of the invalidity of claim 1 has no impact on the other claims of the '460 patent.

IV. The Validity of '073 Patent

Defendants attack the validity of claims 1, 4-6, 9, 11 and 13 of the '073 patent as being invalid for failing to comply with paragraph 2 of 35 U.S.C. §112, which states:

> The specification shall conclude with one or more claims particularly pointing and distinctly claiming the subject matter which the applicant regards as his invention.

Specifically, defendants argue that claim 1 of the '073 patent does not comply with §112 because it fails to indicate that the solution containers described by the '073 patent must be vented, and thus, the dependant claims of the '073 patent are invalid.****** Claim 1 of the '073 patent states:

> d. A plurality of closed solution containers mounted in predetermined order in a storage compartment in said cabinet approximate said paraffin container, each solution container containing a particular tissue processing solution with said melted paraffin container collectively containing all of the said tissue solutions in which said specimens are processed.

Claim 1, subparagraph k, recites in detail the purpose of the tissue processing system.

> said solutions ... are successfully, selectively and independently drawn from said solution ... containers ... and admitted to said solution under a vacuum condition in a predetermined volume ... and at the

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****** In accordance with Fed.R.Civ.P. 15(b), defendants moved at trial to amend their answer to include the §112 defense. Plaintiffs opposed the motion, and it was not ruled on at trial. We will grant defendants' rule 15(b) motion, because of the well-established rule that motions to amend should liberally be granted and because we find that under all the circumstances plaintiffs would not have been prejudiced unfairly even if we were to have ruled differently on the defense asserted by one amendment.

> end of each processing step being forced back to a respective said solution ... container by pressure from said pump ....

Plaintiffs' Ex. A, Col. 12, Lines 8-17. Defendants argue that because the preceding language does not indicate that the containers must be *vented*, this means that the claimed invention is inoperative and therefore invalid under §112. *See* Defendants' Post-Trial Br. at 26-27; Tr. at 70; 184-185.

We disagree with defendants that the language in claim 1 of the '073 patent does not read with the specificity which would reasonably apprise those skilled in the art both of the utilization and scope of the invention. *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565 (Fed.Cir. 1983). Rather, the apparatus described by claim 1 of the '073 patent is adequately described because one skilled in the art would understand all of the language in the claims when they are read in light of the specification, as they must be. *Andrew Corp. v. Gabriel Electronics, Inc.*, 847 F.2d 819, 822 (Fed.Cir.) *cert. denied*, 488 U.S. 927 (1988); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1385 (Fed.Cir. 1986), *cert. denied*, 480 U.S. 947 (1987).

V. Infringement of the '460 Patent

When testing for infringement, courts must interpret the patent's claims, giving the claims their ordinary meaning unless they have been given a different meaning in view of their prosecution in the United States Patent and Trademark office. *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed.Cir.1988); *SRI Int'l v. Matsushita Electric Corp.*, 775 F.2d 1107, 1121 n.14 (Fed.Cir. 1985). Once the patent claims are interpreted, infringement is determined by comparing these claims with the accused process or device. Infringement will be found if "every limitation of the patent claims asserted to be infringed is found in the accused device, either literally or by an equivalent." *Smithkline Diagnostics, Inc. v. Helena Labora-*

tories, Corp., 859 F.2d 878, 889 (Fed.Cir. 1988). *See also Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 70 S.Ct. 854 (1950); *SRI International, supra* at 1118. As the following discussion indicates, we find that the '460 and '073 patents have been literally infringed or, in the alternative, we find there is infringement under the doctrine of equivalents because the Hypercenter performs substantially the same function in substantially the same way to obtain substantially the same result as the claimed invention. *Graver Tank & Mfg. Co., supra* at 607; *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934-37 (Fed.Cir. 1987), *cert. denied*, 485 U.S. 961 (1988).

Claim 1 of the '460 patent, in its preamble, calls for:

> A method for processing a plurality of individual specimens of tissue to be separately contained while being simultaneously bathed for varying lengths of time in successive selected tissue solutions including melted paraffin so as to fix, dehydrate and clear the specimens preparatory to embedding, ...

Defendants have admitted that the Hypercenter is a system or apparatus for processing a plurality of individual tissue specimens. (Tr. at 227). Moreover, the record indicates that steps 1a to 1c of the '460 patent are carried out in the operation of the Hypercenter because tissue specimens are installed by groups, having at least one specimen per group in tissue cassettes, which are then installed in the processing chamber of the Hypercenter. This processing chamber is temperature controlled and electrically heated, having a pressure-sealable top. (Tr. at 40-43; 227-228). In the normal operation of the Hypercenter, the temperature in the processing chamber is maintained at a lower temperature for all solutions except paraffin. (Plaintiff's Ex. H, Sec. 2.3; Tr. at 56, 65-67).

Step d of claim 1 discloses the processing chamber positioned "in proximity to a plurality of closed *vented* containers,

each containing a particular tissue processing solution ...." *See* Appendix B (emphasis added). The features disclosed by claim 1d appear in the Hypercenter, although defendants maintain that the containers used in the Hypercenter for the individual processing solutions are not "vented" containers. (Tr. at 43-45, 228, 229).

Along with the requirement concerning temperature, volume and time, which the record indicates the Hypercenter embodies, claim 1 of the '460 patent calls for the application of pressure and vacuum cycles for each of the processing solutions, including paraffin, with the particular solution being drawn into the processing chamber during the vacuum cycle and returned to its container during the pressure cycle. The record indicates that the Hypercenter operates with these vacuum-pressure cycles applied to the processing chamber. (Tr. at 43-44, 53-54, 229-32).

However, defendants advance two arguments in order to avoid a finding of infringement of the '460 patent: (1) that the solution containers in the Hypercenter 2 are not "*vented*" containers, or the equivalent thereof, as called for in the claim; and (2) that the transfer of the processing solutions to and from the processing chamber is not caused *solely* by vacuum and pressure in the processing chamber, but additionally, the solutions are transferred by pressure and vacuum applied to the individual solution containers.

A) The Hypercenter 2 and "Vented" Containers:

It is well-established that in claim interpretation words are given their ordinary and accustomed meaning unless it appears that the inventors have intended to apply a different meaning, acting as their own lexicographers. *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 867 (Fed.Cir. 1985). The term "vent" has been defined as "an opening for the escape of a gas or liquid or for the relief of pressure" and there is nothing in the '460 patent to suggest that the inventors meant something other than this in

using the term "vented" containers. *See* Webster's 7th New Collegiate Dictionary. Plaintiffs' expert testimony concerning the patent's use of the word "vented" is consistent with this definition. (Tr. at 50, 178, 211-212, 214-15).

Defendants argue that the term as used in the '460 patent should be read as requiring the gases to be "vented to the atmosphere". (Tr. at 546). However, the claims themselves use the broader, generic term "vented", and we see no justification for narrowing the language used by claim 1 of the '460 patent. *Specialty Composites*, 845 F.2d at 987. Thus, claim 1 covers both containers which are vented to the atmosphere and those vented containers which do not release to the atmosphere.

The storage containers in the Hypercenter are "vented containers" as called for by the '460 patent claims. The opening at the upper portion of each Hypercenter storage container is a vent because it is used as an outlet for gas from the container when liquid is pumped to that container. Plaintiffs Ex. 2; Tr. at 46-50, 215, 671. Indeed, plaintiffs' witness John Gordon, who developed the Hypercenter, conceded that the solution container of the Hypercenter was a vented container. (Tr. at 547). Both the accused device and the '460 patent are provided with tubes which connect the bottom of the container which holds the treating solutions with the processing chamber so that the treating solutions may be transferred from the container to the processing chamber and then returned from the processing chamber to the container. And both devices are provided with outlet openings on the upper portions through which gas can exit, displaced by the returning liquid, or through which gas can enter as the solution is transferred to the processing chamber. (Tr. at 214-15, 671-72, 47-50).

B) The Vacuum-Pressure Cycle and The Solution Containers:

Plaintiffs have shown that the operation of the Hypercenter utilizes the teaching of the '460 patent, by pressurizing the processing chamber. However, defendants seek to avoid a finding of infringement by asserting that there has been no showing that pressure acting on the processing chamber was the *sole* mechanism for moving liquids within the accused device. In other words, defendants maintain that plaintiffs may not claim infringement if pressure is applied to the various solution containers. (Tr. at 417).

However, where each element recited in any one claim is found in the accused device or process, there is infringement, and infringement cannot be avoided merely because the defendants have added further elements or steps to the accused device or process. *Mannesmann Demag Corp. v. Engineered Metal Products Co.*, 793 F.2d 1279, 1282-83 (Fed.Cir. 1986); *Amstar Corp. v. Envirotech Corp.*, 730 F.2d 1476, 1484 (Fed.Cir.), *cert. denied*, 469 U.S. 924 (1984). The testimony of Mr. White and the evidence before the court indicates that plaintiffs did not limit the scope of claim 1 by prohibiting the use of pressure or vacuum on the reagent bottles, simply because the prior art utilized pressure only on the reagent containers. (Tr. at 432, 438-42, 444-45).

Rather, when plaintiffs pointed out the distinctions between the Astle (Defendants' Ex. 9) and '460 patents to the Patent and Trademark office examiner, they noted that to use the invention disclosed by the '460 patent: (1) there *must* be a reaction chamber which can be and is pressurized (the prior art reaction chamber had no such capability); (2) the '460 patent had advantages over the Astle patent because in the former, only one compartment (*i.e.*: the processing chamber) had to be pressurized, whereas in the Astle patent *each* container had to be pressurized; and (3) the user of the invention of the '460 patent

in suit had an option; he was not required to apply pressure to the reagent container while the user of the prior art was required to do so. (Tr. at 445-49; Defendants' Ex. 1 at 55-56). Moreover, insofar as defendants make this argument under the guise of file wrapper estoppel, as Mr. White conceded, in cases of literal infringement, the doctrine of file history estoppel is irrelevant. (Tr. at 431-32).

Plaintiffs also have assailed the assertion that pressure is actually applied to the Hypercenter's storage containers. Testimony at trial regarding tests run by plaintiffs indicates that no change of pressure could be noted in the lines connected to the individual solution containers during the operation of the Hypercenter. (Tr. 72-73, 196-97, 673; Ex. 81). During the pressure cycle in the Hypercenter's processing chamber, the gas exiting from the solution container is recycled through the pump to the processing chamber, with any excess gas being collected in the air bag at about atmospheric pressure. (Tr. 650-61; *see* Plaintiffs' Ex. N). If the bag is filled, the excess gas is released through a safety valve to the atmosphere. Thus, the degree to which the individual solution containers are pressurized is revealed by the degree to which the air bag is filled. Plaintiffs' expert testified that the air bag in the Hypercenter ensures that during operation the pressure in the individual solution containers remains at about atmospheric pressure. (Tr. at 72-73, 196-208, 650-53, 660-61; Ex. 81). The defendants ran only an aborted test at trial and refused to disclose the results of prior tests. (Tr. at 510, 561-62, 570-71).

In light of the foregoing, the evidence before us does not support defendants' reverse equivalents defense. The doctrine of reverse equivalents applies when a court finds that although the accused product literally infringes the claims of the patent at issue, the process utilized by the accused product performs the functions of the claims invention in a substantially different

way. *SRI International v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1123-24 (Fed.Cir. 1985).

The manner in which the Hypercenter recycles gases is the ostensible improvement provided by the Hypercenter. However, this improvement does not change in a substantially different way the principles of operation as set forth in claim 1 of the '460 patent, and the improvement will not avoid infringement even if it is separately patentable. *See Texas Instruments, Inc. v. United States Int'l Trade Com.*, 805 F.2d 1558, 1568 (Fed.Cir. 1986); *Rolls-Royce, Ltd. v. GTE Valeron Corp.*, 800 F.2d 1101, 1110 n.9 (Fed.Cir. 1986); (Tr. at 73, 665-66). Claim 1 of the '460 patent is infringed.

C) Infringement of Other Claims of The '460 Patent:

The evidence before us supports a finding that claim 2 is infringed. Claim 2 calls for maintaining the paraffin:

> in a melted state in two separate, heated-controlled containers in immediate proximity to the [processing] chamber, and during each sequence the melted paraffin in a first operative step is drawn from the first of said paraffin containers and in a second, later operative step, from the second of such containers.

As is apparent from the discussion of the infringement of the '073 patent, *infra*, defendants admit that the Hypercenter utilizes two paraffin containers which operate in the manner called for in claim 2. However, defendants maintain that they avoid the "immediate proximity" limitation set forth in claim 2, because the paraffin containers in the Hypercenter do not touch the processing chamber. As the discussion of the infringement of claim 1 of the '073 patent indicates, defendants' argument fails to exonerate it from literally infringing claim 2 of the '460 patent and claim of 1 of the '073 patent. Claim 2 of the '460 patent is infringed.

Claim 4 calls for subjecting the processing chamber to "an alternating pressure/vacuum cycle to effect agitation of the solution" during the period that the specimens are being treated with a particular solution. The evidence before us indicates that during the operation of the Hypercenter, the processing chamber is subject to pressure/vacuum cycles during tidal agitation. *See* Plaintiffs' Ex. J; Tr. at 53-54, 204. Claim 4 of the '460 patent is infringed.

Defendants do not contest infringement of claims 5 and 6. Because claim 1 is found to be infringed, claims 5 and 6 of the '460 patent, as dependent claims, are infringed as well.

Claim 7 calls for maintaining the temperature in the processing chamber at a lower temperature for all solutions except paraffin. The Hypercenter 2 operates in the manner as called for in claim 7. (Tr. at 56). Claim 7 of the '460 patent is infringed.

VI. Infringement of the '073 Patent

Plaintiffs have established that the Hypercenter meets every element of claim 1 of the '073 patent. (Tr. at 58-69). Defendants seek to avoid a finding of infringement by arguing (1) that the Hypercenter's cabinet is composed of sections or modules and is thus not a single cabinet as called for in claim 1, and (2) that the melted paraffin container of the Hypercenter does not have an end wall "immediately adjacent" to the end wall of the processing chamber as called for in the '073 patent.

The cabinet recitation in claim 1 merely defines an enclosure for the various elements. In the embodiment illustrated in the patent, the enclosure is comprised of a number of sections (including the reagent bottles, the processing chamber, the paraffin containers, and the control module). The modules of the Hypercenter collectively form a cabinet.

Even under an alternative finding that the modules of the Hypercenter do not collectively form a single cabinet infringe-

ment would lie under the doctrine of equivalents, since the Hypercenter modules perform the same function, in the same manner as the cabinet in the instant patent because they represent an enclosure containing the various elements of the device. (Tr. 56-58, 145, 315). *Graver Tank & Mfg. Co.*, 339 U.S. at 607; *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934-37 (Fed.Cir. 1987), *cert. denied*, 485 U.S. 961 (1988).

As alluded to in the discussion of infringement of claim 2 of the '460 patent, defendants' arguments concerning the "immediately adjacent" limitation on the location of the melted paraffin container is an erroneous interpretation of the claim, because the language "immediately adjacent" does not mean that the paraffin container and the processing chamber must be "in contact with" one another. Indeed, the specification indicates that the paraffin container can be separated from the processing chamber. *See* Plaintiffs' Ex. A. Col. 10, lines 48-49. The evidence before us also indicates, and defendants have failed to refute this indication, that the Hypercenter functions as called for in Subpart k of claim 1. (Tr. at 68-69). Claim 1 of the '073 patent is infringed.

The Hypercenter 2 has a remotely electrically controllable rotary/type valve, as called for in claim 4 of the '073 patent. (Tr. at 62-65, 69). Additionally, the Hypercenter has a two-stage control for obtaining different degrees of heat in the processing chamber, relative to various time sequences, as calls for in claim 5. (Tr. at 65-67, 70). Claim 6 of the '073 patent calls for a combination of the elements of claims 4 and 5 which are present in the Hypercenter. (Tr. at 65-67, 70). Claim 9 calls for "control means includ[ing] circuitry connected to cycle the application of vacuum and pressure conditions [in the processing chamber]" and this element is found in the Hypercenter. (Tr. at 55-70). The Hypercenter also embodies the adjustable timing device as set forth in claim 11. *Id.* Finally, claim 13 calls for the control means mounted on the cabinet, air pump means (*i.e.* an electri-

cally operated pump mounted in the cabinet), and interconnected pumping means including an outlet pipe in which the pressure and vacuum conditions may be selectively produced, the outlet pipe being connected to the chamber. All of these elements are present in the Hypercenter. (Tr. at 55, 57, 59, 70). Claims 4, 5, 6, 9, 11, and 13 of the '073 patent are infringed.

VII. Summary

We have concluded that claim 1 of the '460 patent is invalid because its subject matter is obvious in light of the prior art. We have upheld the validity of claim 1 of the '073 patent and rejected defendants' contention that it is invalid for lack of the specificity required by paragraph 2 of 35 U.S.C. §112. Finally, we have concluded that claims 1, 2, and 4-7 of the '460 patent and claims 1, 4-6, 9, 11 and 13 of the '073 patent have been infringed literally, or in the alternative, by application of the doctrine of equivalents.

An appropriate order will follow.

/s/Gustave Diamond
United States District Judge

Date: March 11, 1992

APPENDIX A

'073 PATENT

'073 patent reads as follows:

1. A closed processing system enabling a plurality of individual specimens of tissue to be separately contained while being bathed simultaneously for varying lengths of time in successive selected tissue solution including melted paraffin so as to fix, dehydrate and clear the specimens preparatory to embedding, comprising:

a. a plurality of uniform tissue receptacles each being adapted to contain and physically isolate a group of tissue specimens having at least one specimen per group, each receptacle having a body portion defining an open cavity adapted to receive and retain specimens and closure means removably received by said body to enclose said cavity, the material forming said receptacles being inert to all of said solutions and having for each said solutions at least some portion through which each of said solutions may be transferred;

b. a cabinet;

c. an electrically heated, temperature controlled container mounted in said cabinet and having a movable cover and being adapted for melting and holding melted paraffin;

d. a plurality of closed solution containers mounted in predetermined order in a storage compartment in said cabinet proximate said paraffin container, each solution container containing a particular tissue processing solution and with said melted paraffin container collectively containing all of said tissue solutions in which said specimens are processed;

e. air pump means having associated remotely electrically controllable first valve means mounted prox-

imate said cabinet and associated interconnected piping means, said pump means providing a pressure and vacuum source and said first valve means being selectively operable to connect said source whereby to produce a selected pressure or vacuum condition in said piping means;

f. a processing chamber mounted in said cabinet and having an end wall immediately adjacent an end wall of said melted paraffin container, said chamber having a pressure sealable top cover and being adapted to receive and process therein selected numbers of said receptacles simultaneously, said chamber being temperature controlled and electrically heated and being connected to said piping means thereby enabling the corresponding selected pressure and vacuum condition in said piping means to e produced in said chamber;

g. a second remotely electrically controllable valve means mounted in said cabinet and having on one side a fluid connection to said chamber and on the other side a fluid connection to said paraffin container enabling the paraffin contents thereof to be exchanged between the chamber and said paraffin container, said fluid connections for said second valve means being of minimal length and being electrically heated and maintained at a temperature above the melting point of said paraffin;

h. a third remotely electrically controllable valve means mounted in said cabinet and having on one side a fluid connection of minimal length to said chamber and on the other side a port for transfer of solutions therethrough;

i. fourth remotely electrically controllable transfer means positioned in said cabinet between said processing chamber and said storage compartment, said

fourth valve means being fluid connected on one side of said third valve transfer port and on the other side having separate fluid connections to each of said solution containers and being remotely electrically controllable for enabling each solution container connection on the one side of the fourth valve means to be selectively and independently connected to said transfer port for a predetermined time while all other solution container connections are isolated therefrom and at other times to isolate all of said solution container connections from said transfer port;

j. an electrical source; and

k. remotely operable electrical control means connected to said power source and mounted proximate said chamber for remotely powering and electrically operating each of said valve means and temperature controls in a predetermined time sequence program whereby with a selected number of said receptacles installed in said chamber and said cover sealed on said chamber, said solutions and said paraffin containers, are measured by timing the withdrawal and admitted to said chamber under a vacuum condition in a predetermined volume, retained for predetermined times at predetermined pressure and at the end of each processing step being forced back to a respective said solution and paraffin container by pressure from said pump means source in a corresponding processing sequence such that selected of said solutions and said melted paraffin are separately and independently exchanged with each said group of specimens while maintaining said system closed, said paraffin transferred a minimal distance, and each said group physically isolated.

APPENDIX B

'460 PATENT

'460 patent reads as follows:

1. A method for processing a plurality of individual specimens of tissue to be separately contained while being simultaneously bathed for varying lengths of time in successive selected tissue solutions including melted paraffin so as to fix, dehydrate and clear the specimens preparatory to embedding, comprising:

a. separating the specimens to be processed into groups;

b. installing and physically isolating each group having at least one specimen per group in a respective uniform tissue receptacle which is porous to the extent of having for each of said solutions at least some portion through which the solution may be transferred;

c. installing a plurality of such receptacles in a temperature controlled and electrically heated processing chamber having a pressure sealable top cover and then sealing the cover;

d. with the receptacles installed, the cover sealed and with the chamber positioned in proximity to a plurality of closed vented containers, each containing a particular tissue processing solution, including melted paraffin in a heated temperature controlled state, selectively and independently connecting each container to the chamber to bring the solutions including the paraffin, with the paraffin being the last solution, in a predetermined sequence to the chamber and for each such solution in the sequence:

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

MILES LABORATORIES, INC.,
and TRIANGLE BIOMEDICAL
EQUIPMENT, INC.,

Plaintiffs,

v.

SHANDON, INC., and SHANDON
SOUTHERN PRODUCTS LIMITED,

Defendants.

Civil Action No. 86-2404

ORDER OF COURT

AND NOW, this 14th day of April, 1992, for the reasons set forth in the memorandum opinion filed this day, IT IS ORDERED that claims 2, 4-7 of the '460 patent be, and the same hereby are, declared invalid consistent with our March 11, 1992, opinion; and,

IT IS FURTHER ORDERED that defendants' motion to amend judgment by declaring the '073 patent be invalid by virtue of 35 U.S.C.§112 ¶2 be, and the same hereby is, denied; and,

IT IS FURTHER ORDERED that defendants Shandon, Inc. and Shandon Southern Products, Ltd., their officers, servants and employees and those persons in active concert or participation with them who have receive actual notice of this order by personal service or otherwise, are permanently enjoined from manufacturing, using, or selling the Hypercenter and Hypercenter 2 or otherwise infringing the patents identified in our March 11, 1992, opinion and order; and,

IT IS FURTHER ORDERED that an accounting is ordered to resolve the remaining issues in this case; the parties may take appropriate discovery as to the damages issue.

/s/Gustave Diamond
United States District Judge

cc: Lynn J. Alstadt, Esq.
Buchanan Ingersoll, P.C.
58th Fl., USX Tower
Pittsburgh, PA 15219

Robert D. Yeager, Esq.
Kirkpatrick & Lockhart
1500 Oliver Building
Pittsburgh, PA 15222

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

MILES LABORATORIES, INC.,
and TRIANGLE BIOMEDICAL
EQUIPMENT, INC.,

Plaintiffs,

v.

SHANDON, INC., and SHANDON
SOUTHERN PRODUCTS LIMITED,

Defendants.

Civil Action No. 86-2404

MEMORANDUM OPINION

DIAMOND, J.

Subsequent to this court's March 11, 1992, opinion and order, defendants have moved pursuant to Fed.R.Civ.P. 59(e) and 52(b) to amend our opinion and plaintiffs have filed a motion for entry of injunction in accordance with 35 U.S.C. §154. As we explained below, we will grant defendants' motion to amend the judgment insofar as it requests clarification that the dependent claims in '460 patent (claims 2, 4-7) are invalid by virtue of our March 11, 1992, opinion that claim 1 of the '460 patent is invalid. However, we will deny defendants' motion to amend the judgment on the basis that the '073 patent is invalid pursuant to 35 U.S.C. § 112 ¶2. We will therefore grant plaintiffs' motion for an injunction against further infringement by defendants and an accounting is ordered to resolve the remaining issues in this case; the parties may take appropriate discovery as to damages.

We agree with defendants that our March 16, 1992, opinion and order should be clarified to include a finding that the dependent claims of the '460 patent are invalid by virtue of claim

1's invalidity.[1] It is well settled that where the parties have, as here, set forth *representative* claims, dependent claims which are not argued separately from the independent claim do not survive a finding the independent claim is invalid. *See Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 1350 (Fed.Cir.) (en banc), *cert. denied*, 469 U.S. 830 (1984) (dependent claim not separately argued is invalid along with the independent claim). *See also Panduit Corp. v. Denison Mfg. Co., Inc.*, 836 F.2d 1329, 1330 n.1 (Fed.Cir. 1987).

Defendants also ask this court to amend its judgment on the basis of its §112 ¶2 argument that because the '073 patent does not disclose "a vent," it does "not fulfill the statutory requirements of the second paragraph of 35 U.S.C. §112." Defendants' Memorandum in Support of its Motion to Amend Judgment at 8. Contrary to defendants' presumption, this court did not "miss the point of defendants' argument." *Id.* Rather, the court believes that it accurately perceived and applied the doctrine embodied in the second paragraph of §112. It is well understood that to be valid a claim must recite a structure that is capable of performing its purported function. *General Electric Co. v. United States*, 572 F.2d 745, 755 (Ct.Cl. 1978)(en banc). Plaintiffs refer us to Mr. Kocsis's testimony at trial (Tr. at 184-85) which we considered in our March 11, 1992, opinion and which we deemed insufficient to make out a §112 claim as a matter of law in view of other evidence in the record.

Indeed, defendants' argument proves too much when they write that:

---

[1] The April, 1988 pretrial "Stipulation of Agreed Fact, Law of the Case and Questions of Law," reads in pertinent part:

> The '460 patent contains seven claims. Claim 1 is the only independent claim. Claims 2 through 7 depend directly or indirectly from claim 1. Consequently, claim 1 is the broadest claim and can be considered to be *representative* of the claims in this patent.

Id. at 4 (emphasis added).

> Mr. Kocsis was merely stating a well known physical principle. For example, it is well known that it is difficult to pour liquid from an old-fashioned tin can unless a second hole is punched opposite the pouring hole. Any dispute of that principal defies common sense.

Defendants' Memorandum at 10. Taking this proposition as true, we do not find that the '073 patent fails to satisfy the standard of §112 ¶2, simply because a vent is not recited in the claim and we are not "reading in" a vent into the claims. Rather, we are taking note of the well known doctrine, which is recognized by the case defendants attached to their motion, that "it is not necessary that a claimant cite *each and every element* needed for the practical utilization of the claimed subject matter." *Carl Zeiss Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1181 (Fed.Cir. 1991). *See also Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533-34 (Fed.Cir.), *cert. denied*, 484 U.S. 954 (1987) (under §112, "a patent need not teach, and preferably omits, what is well known in the art") (*citing Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2 1367, 1384 (Fed.Cir. 1986), *cert. denied*, 480 U.S. 947 (1987)).

Moreover, in weighing the evidence, we find that defendants have not shown total inoperativeness, assuming that their argument as a matter of law is correct, which we do not. The claimed invention utilizes "a plurality of closed solution containers" and, as plaintiffs have pointed out, there are at least two kinds of such closed containers: closed vented containers and closed unvented containers. The preferred embodiment describes containers closed with caps having vents in them. Col. 6, line 3, *et seq.* Indeed, the record shows that even unvented containers would be operative, and we find that defendants have not carried their burden on this claim. (*See* Tr. at 647, 701-76, 712).[2]

[2] If defendants were proceeding under a 35 U.S.C. §101 theory that the invention, by failing to disclose "a vent" would be "scientifically impossible," they would have to muster clear and convincing evidence and this they have not done. *See, e.g., Tol-O-Matic v. Proma Produkt-Und Marketing*, 945 F.2d 1546, 1552-53 (Fed.Cir. 1991).

Defendants argue that "claim 1, as written, recites a 'closed processing system'", and that this language cannot be reconciled with the finding of "a vent", because a vent implies an opening. Defendants' Memorandum at 11. We reject this reasoning. Whether a unit is "closed" depends on what the unit disclosed in the claim seeks to "enclose" — solution or air? Indeed, as noted above, the description of the preferred embodiment points out that the solution containers are *closed* with respect to *solution* (which is, after all, what they were designed to contain) but that their vents, if any, pertain to the flow of *air* and which are "kept extremely small so as to limit any admission of moisture." Col. 6, line 3. Thus, claim 1 of the '073 patent is not invalid under §112 ¶2, because, reading the claim's language literally, the modifier "closed" pertains only to the term "solution", not air. In short, it is defendants who would have us "read in" modifiers into claim 1 of the '073 patent by adding the terms "absolutely" closed or "hermetically" closed. This we decline to do. Finally, the language relating to a "closed processing system" is directed towards a self-enclosed system for processing tissues as distinct from one which relies on manual interactions with the tissues and fluid.

An appropriate order will follow.

/s/Gustave Diamond
United States District Judge

Date: April 14, 1992

cc: Lynn J. Alstadt, Esq.
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58th Fl., USX Tower
Pittsburgh, PA 15219

Robert D. Yeager, Esq.
Kirkpatrick & Lockhart
1500 Oliver Building
Pittsburgh, PA 15222

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

MILES LABORATORIES, INC.,
and TRIANGLE BIOMEDICAL
EQUIPMENT, INC.,

Plaintiffs,

v.

SHANDON, INC., and SHANDON
SOUTHERN PRODUCTS LIMITED,

Defendants.

Civil Action No. 86-2404

ORDER OF COURT

AND NOW, this 8th day of May, 1992:

The parties to the above-captioned action have filed a joint motion to amend paragraph 3 of this court's April 14, 1992, order enjoining defendants from infringing plaintiff's valid patent.

Accordingly, IT IS ORDERED that the joint motion to amend paragraph 3 of this court's April 14, 1992, order (Docket No. 68) be, and the same hereby is, granted; and,

IT IS FURTHER ORDERED that paragraph 3 of the April 14, 1992, order (Docket No. 67) be, and the same hereby is, amended to read as follows:

IT IS FURTHER ORDERED that defendants Shandon, Inc. and Shandon Southern Products, Ltd., their officers, servants and employees and those persons in active concert or participation with them who have received actual notice of this order by personal service or otherwise, are permanently enjoined from infringing the '073 patent by manufacturing, using,

or selling the Hypercenter and Hypercenter 2 or otherwise infringing said patent.

/s/Gustave Diamond
United States District Judge

cc: Lynn J. Alstadt, Esq.
Buchanan Ingersoll, P.C.
58th Floor, USX Tower
Pittsburgh, PA 15219

Robert D. Yeager, Esq.
Kirkpatrick & Lockhart
1500 Oliver Building
Pittsburgh, PA 15222

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

MILES LABORATORIES, INC. and
TRIANGLE BIOMEDICAL EQUIPMENT, INC.,
Plaintiffs-Appellees,

v.

SHANDON INC. AND SHANDON SOUTHERN
PRODUCTS LIMITED,
Defendants-Appellants.

92-1358

ORDER

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for rehearing and suggestion for rehearing in banc having been filed by the APPELLANT, and a response thereto having been invited by the court and filed by the CROSS-APPELLANT, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the suggestion for rehearing in banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, DENIED, and it is further

ORDERED that the suggestion for rehearing in banc be, and the same hereby is, DECLINED

For The Court,
Francis X. Gindhart, Clerk

Dated: September 1, 1993

By/s/Diane M. Frye
Diane M. Frye
Chief Deputy Clerk

cc: ROBERT D. YEAGER
ARNOLD SPRUNG

MILES LAB INC V SHANDON INC, 92-1358
(DCT - 86-2404)

Note: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public record.

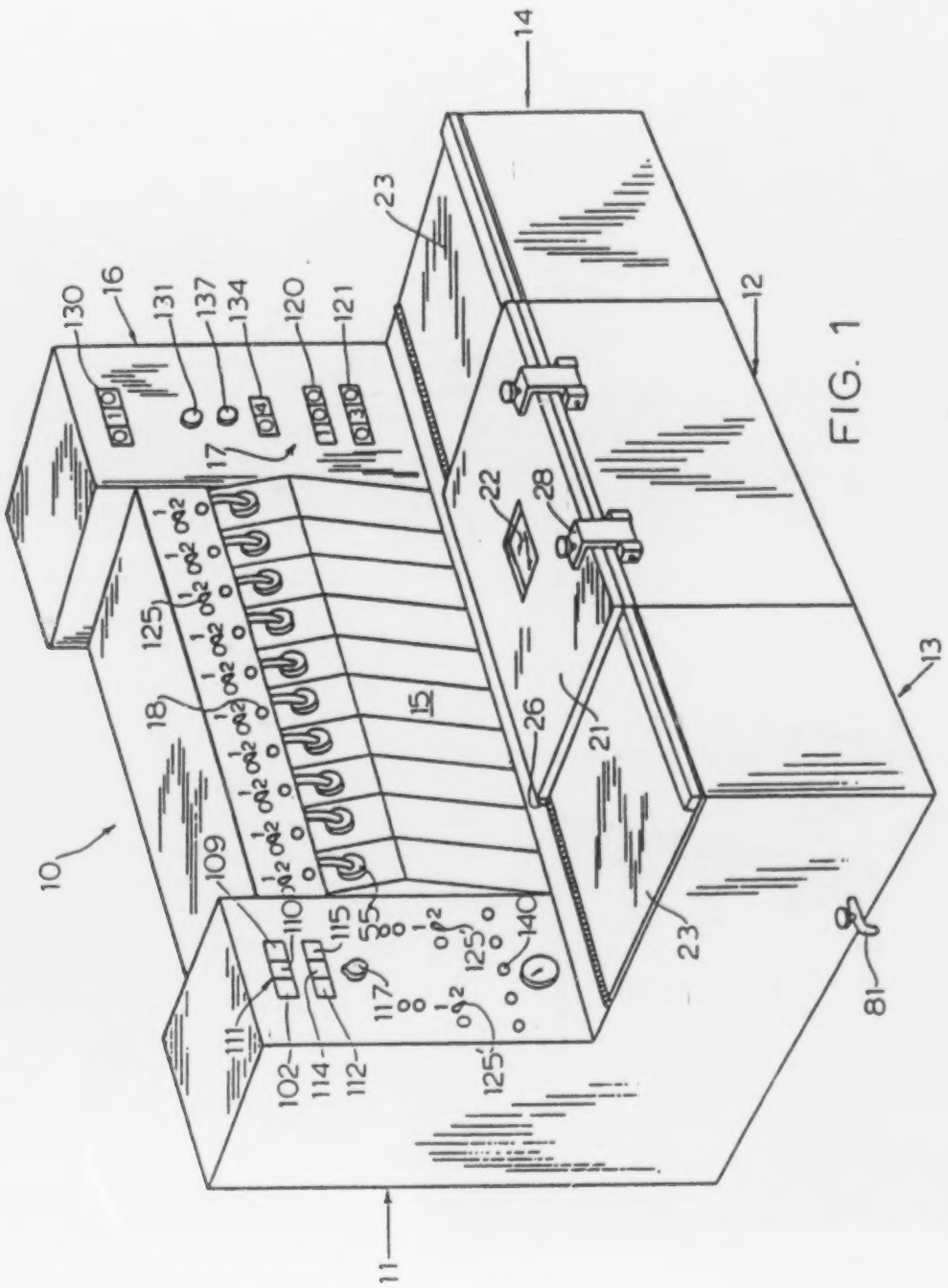
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FIG. 1

HYPERCENTER SYSTEM

Command Module

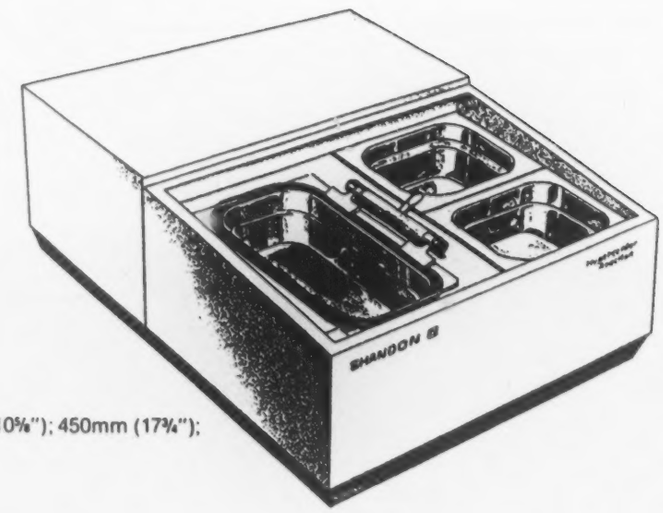
The command module has a visual display unit on which the complete processing cycle can be constantly monitored, and it can be located up to 50 feet away from the reaction module, outside the laboratory environment, if required.

Command Module: 260mm (9⅞"); 450mm (17¾"); 280mm (11")

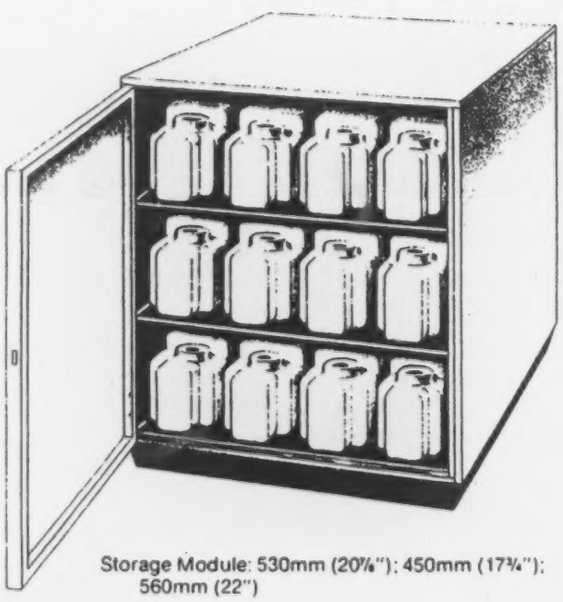
Reaction Module

Each reaction module incorporates two independently heated wax baths and a reaction chamber made of stainless steel.

Up to 200 processing cassettes can be handled in the sealed reaction chamber, which has a fluid capacity in excess of 2 liters.



Reaction Module: 270mm (10⅝"); 450mm (17¾"); 560mm (22")



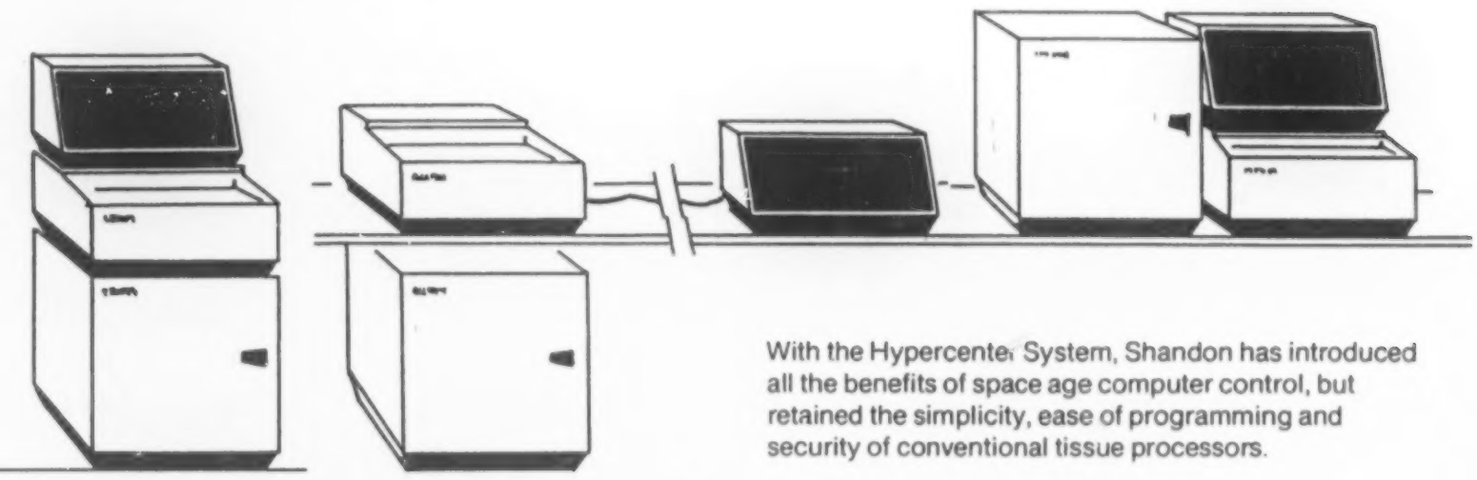
Storage Module

The storage module is a metal cabinet fitted with casters for ease of mobility, in which up to 12 reagent containers can be stored. All of the reagents required for processing (except wax) are stored in these containers. Each container simply plugs directly into the system; no clamps or tubes are involved. In addition, the containers are compatible with all reagents in common use, including chloroform and acetone. This cabinet meets the regulations for the storage of flammable or hazardous solutions in the laboratory.

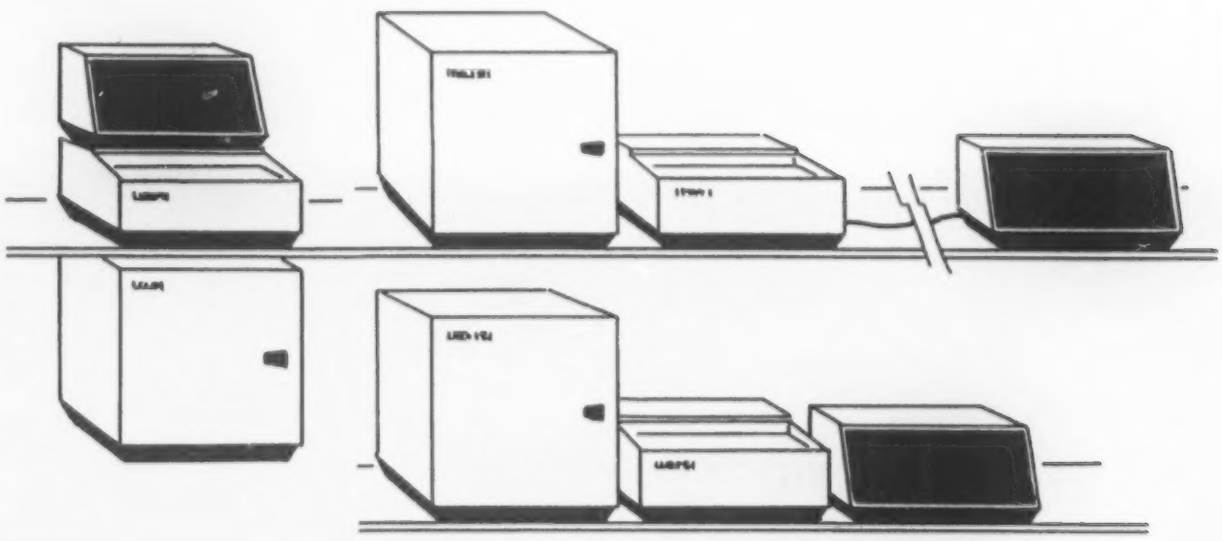
Storage Module: 530mm (20⅞"); 450mm (17¾"); 560mm (22")

SHANDON HYPERCENTER SYSTEM

The three modules that make up the Hypercenter System can be arranged in different ways to make the maximum effective use of laboratory bench space. The modular design enables all three units to be stacked neatly, one on top of the other, or in a variety of layouts to suit individual needs.



With the Hypercenter System, Shandon has introduced all the benefits of space age computer control, but retained the simplicity, ease of programming and security of conventional tissue processors.



A plug-in, hard copy printer is available as an option to provide a permanent record of processing cycles.

The compact, modular design of the Hypercenter System occupies much less bench space than conventional tissue processors or the larger enclosed tissue processors currently available.

Dimensions (mm)

	HEIGHT	WIDTH	DEPTH
Command Module	260mm (9⅞")	450mm (17¾")	280mm (11")
Reaction Module	270mm (10⅝")	450mm (17¾")	560mm (22")
Storage Module	530mm (20⅞")	450mm (17¾")	560mm (22")

Height of three modules stacked is 1060mm (41¾")

For further information, please contact:

SHANDON

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PHICOM INSTRUMENTS DIVISION